

- (6) A female, west fork of Gila River, N. M., July 16 (*C. H. T. Townsend*). This looks like a distinct species, but Mr. Fox, after comparing it with the Cresson collection, refers it to *americana*. The abdomen is not so hairy as in the others, and the hair at the bases of the segments after the first is lacking. The punctures on the second segment are conspicuously finer and closer than those on the first.
- (7) Mesilla, N. M., two males on *Bigelovia Wrightii*, Aug. 29, 1896.
- (8) Las Cruces, N. M., two males on *Bigelovia Wrightii*, end of August. Two males on *Solidago canadensis* by Schaublin's mill, Sept. 3 and 4.

Mesilla, New Mexico, U.S.A.,
Nov. 14, 1896.

VII.—*On Cteniform Spiders from the Lower Amazons and other Regions of North and South America, with List of all known Species of these Groups hitherto recorded from the New World.* By F. O. PICKARD CAMBRIDGE, B.A.

[Plates III. & IV.]

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(i.) Introduction.

The following pages contain descriptions of a new genus and twenty-two new species of spiders, one male new to science of a species already described, and notice of two forms renamed, since the original names were bestowed on forms of whose identity we have now no real clue.

Of the new species thirteen, not including the new male form, have been placed provisionally under the generic name *Ctenus*; for five species the new genus *Lycotenus* has been established, containing three-clawed Dolomedine forms; one new species has been added to Keyserling's genus *Stenotenus*, in all probability congeneric with *Labdacus*, O. Cambr.; one new species has been added to this latter genus and two to the genus *Acanthotenus*, Keys.

The two forms referred by Count Keyserling to *Phoneutria rufibarbis* and *P. fera*, Perty, sub *Ctenus*, have been re-named *Pertyi* and *Keyserlingii* respectively. The original descriptions and figures of *rufibarbis* and *fera* given by Perty leave no real clue to the particular forms he had before him, and there is no alternative other than re-naming the two forms which Keyserling referred to Perty's names.

As to the real character of the original genus *Ctenus*, Walck., with its type *C. dubius*, Wlk., there is room for much doubt. In 1884 M. Simon records the existence of this type in the Museum at Paris, but now (October 1896) he regrets to say that this type, as well as those of other of Walckenaer's "Ctenidæ," have entirely disappeared. M. Simon, in 1884, says that Walckenaer's *Ctenus* was congeneric with those included under that name by Keyserling. One of Keyserling's species—*C. bogotensis*—however, is a three-clawed form, entering the family Lycosidæ or Pisauridæ according to M. Simon's more recent classification; while another of Keyserling's species of *Ctenus* is congeneric with M. Simon's own genus *Cupiennius*, 1891, which, however, he has lately kindly informed me will fall into *Ctenus* according to his present characterization of the latter.

Of spiders collected in the Amazons Valley during the expedition in Mr. Alexander Siemens's S.S. 'Faraday,' I am able to record therefore ten new species and one new genus, while descriptions of twelve other new species have been added, all from South and Central America, except *C. minimus* from North America.

No attempt has been made to determine the exact systematic position of the three groups into which the "cteniform" spiders fall—a matter which is still in hot dispute amongst

arachnologists. The "cribellate" forms have been placed provisionally in the family furnished for their reception by M. Simon in his second edition of the 'Natural History of Araneæ'—the Zoropsidæ.

I have to thank Mr. R. I. Pocock, of the Natural History Museum, South Kensington, for kindly allowing me to examine the collection of Arachnida under his charge and to describe the new forms discovered.

(ii.) a. *Bibliography relating to the Cteniform Spiders of the New World.*

- 1805.—C. A. WALCKENAER. 'Tableau des Araignées.'
 1833.—GRIFFITH. 'Anim. Kingdom (Cuvier).'
 1833.—M. PERTY. 'Del. Anim. Brasil.' (Spix and Martius), iii.
 1837.—C. A. WALCKENAER. 'Insectes: Aptères,' i.
 1841.—N. M. HENTZ. Boston Soc. Journ. Nat. Hist. iv.
 1848.—C. KOCH. 'Die Arachniden,' xv.
 1872.—M. TACZANOWSKI. Horæ Soc. Ent. Rossicæ, ix.
 1873-4.—M. TACZANOWSKI. Horæ Soc. Ent. Rossicæ, x.
 1873.—O. PICKARD CAMBRIDGE. Proc. Zool. Soc. Lond., Jan.
 1875.—N. M. HENTZ. 'Spid. United States,' ed. Burgess.
 1877.—E. VON KEYSERLING. Verhand. z.-b. Gesell. Wien, t. ii. (viii.).
 1878.—L. KOCH. 'Arachniden Australiens,' ii.
 1878.—KARSCH. Z. ges. Natur. (3) iii.
 1879.—E. VON KEYSERLING. Verhand. z.-b. Gesell. Wien.
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 1880.—PH. BERTKAU. Mém. Cour. Acad. Belgique, t. xliii.
 1880.—E. VON KEYSERLING. Verhandl. z.-b. Gesell. Wien, xxix.
 1880.—EUGÈNE SIMON. Bull. Soc. Zool. Fr.
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 1884.—EUGÈNE SIMON. Ann. Mus. Genov. xx.
 1886.—EUGÈNE SIMON. Bull. Soc. Zool. Fr. ii.
 1887.—VAN HASSELT. Tijdschrift voor Entomologie, xxx.
 1888.—VAN HASSELT. Tijdschrift voor Entomologie, xxxi.
 1888.—EUGÈNE SIMON. Ann. Soc. Ent. Fr. viii.
 1891.—E. VON KEYSERLING. Brasilienische Spinnen.
 1891.—EUGÈNE SIMON. Bull. Soc. Zool. Fr. xvi.
 1892.—O. PICKARD CAMBRIDGE. Biol. Centr.-Americana, Arach. p. 100.

(ii.) b. *List of new Species and other Forms more especially noted.*

Genus CTENUS (? Walck.).

- C. Reidyi*, sp. n., ♀.—Santarem, Lower Amazons. P. 78, Pl. III. figs. i. a, ii.
C. Andrewsii, sp. n., ♀.—Santarem and Pará, Lower Amazons. P. 79, Pl. III. fig. ii. b.

- C. boliviensis*, sp. n., ♂ ♀.—Bolivia, S. America. P. 80, Pl. III. fig. iii.
C. Pertyi, nom. nov., = *C. rufibarbis* (Perty), Keys. P. 80.
C. Keyserlingii, nom. nov., = *C. ferus* (Perty), Keys. P. 81, Pl. III. fig. ii. c.
C. nigriventer, Keys.—Rio Grande do Sul, Brazil. P. 81, Pl. III. fig. ii. d.
C. nigritus, sp. n., ♂.—Santarem, Lower Amazons. P. 81, Pl. III. figs. vi. a, vii. a.
C. sinuatipes, sp. n., ♂ ♀.—La Palma, Costa Rica. P. 84, Pl. III. figs. iv. d, vi. e, vii. f.
C. rectipes, sp. n., ♂.—Iguarassu, Brazil. P. 85, Pl. III. figs. vi. a, vii. b.
C. spiculus, sp. n., ♂.—Colombia. P. 86, Pl. III. figs. vi. g, vii. h.
C. serratipes, sp. n., ♂.—Demerara. P. 87, Pl. III. figs. vi. c, vii. d.
C. planipes, sp. n., ♂.—Santarem, Lower Amazons. P. 84, Pl. III. figs. vi. b, vii. c.
C. medius, Keys. (♂ new to science).—Theresiopolis, S. Brazil. P. 87, Pl. III. figs. vi. f, vii. g.
C. minimus, sp. n., ♂.—N. America. P. 86, Pl. III. fig. v. 1 and 2.
C. minor, sp. n., ♀.—Santarem, Lower Amazons. P. 83, Pl. III. fig. iv. c.
C. albofasciatus, sp. n., ♀.—Santarem, Lower Amazons. P. 82, Pl. III. fig. iv. b.
C. similis, sp. n., ♀.—Santarem, Lower Amazons. P. 83, Pl. III. fig. iv. a.

Genus CUPIENNIUS, Sim.

- C. oculatus*, Sim., = *C. Salvi* (Keys.), sub *Ctenus*. P. 68.

Genus LYCOCTENUS, new.

- L. brunneus*, sp. n., ♂ ♀.—Santarem, Lower Amazons. P. 97, Pl. IV. figs. i. a, i. c, 2, ii. a, c.
L. givias, sp. n., ♂.—Hab. doubtful: Upper Amazons? P. 98, Pl. IV. fig. i. c, 1.
L. demerarensis, sp. n., ♂.—Demerara. P. 99, Pl. IV. fig. i. c, 3.
L. colombianus, sp. n., ♂.—Colombia. P. 99, Pl. IV. fig. i. c, 4.
L. Hewitsoni, sp. n., ♂ ♀.—Santarem. P. 100, Pl. IV. fig. i. b.
L. bogotensis, Keys., ♀.—Bogotá. P. 98, Pl. IV. fig. ii. d, b.

Genus STENOCTENUS, Keys.

- S. pallidus*, sp. n., ♂.—Aimable Maria, Peru. P. 92, Pl. IV. fig. v. a, b.

Genus LABDACUS, O. Cambr.

- L. albidus*, sp. n., ♀.—Rio de Janeiro, S. Brazil. P. 91.

Genus ACANTHOCTENUS, Keys.

- A. Marshii*, sp. n., ♂ ♀.—Santarem &c., Lower Amazons. P. 103, Pl. IV. figs. iii. a, c, iv. a.
A. Ridleyi, sp. n., ♀.—Pernambuco. P. 103, Pl. IV. figs. iii. e, iv. b.
A. spinigerus, Keys., ♂.—Mexico. P. 102, Pl. IV. fig. iii. b.
A. spinipes, Keys., ♀.—Bogotá. P. 103, Pl. IV. fig. iii. d.

PART I.—(a) *Genera of the Old and New Worlds, containing Forms possessing two tarsal claws only, which have been assigned by various authors to the Families Ctenidæ and Clubionidæ, Subfam. Cteninæ, with Notes on the Type Species.*

1805. *Ctenus*, Wlk. Tableau Aran. p. 16. Type *C. dubius*, Wlk., ♀.—Cayenne, French Guiana.
1833. *Phoneutria*, Perty, Del. Anim. Bras. iii. p. 196. Type *P. ferus*, Perty, ♀.—Rio Negro, Brazil.
1833. *Thaumasia*, Perty*.
1875. *Argoctenus*, L. Koch, Arach. Austr. ii. p. 990. Type *A. igneus*, L. K., ♀.—King George's Sound, Australia.
1875. *Leptoctenus*, L. Koch, Arach. Austr. ii. p. 994. Type *L. agalenoides*, L. K., ♂.—Gayndah, Australia.
1877. *Microctenus*, Keys. Verh. z.-b. Ges. Wien, p. 687. Type *M. ornatus*, Keys., ♀.—Bogotá, New Granada.
1877. *Acanthoctenus* †, Keys. Verh. z.-b. Ges. Wien, p. 693. Type *A. spinigerus*, Keys., ♂.—Bogotá, New Granada.
1877. *Caloctenus*, Keys. Verh. z.-b. Ges. Wien, p. 696. Type *C. aculeatus*, Keys., ♀.—Bogotá, New Granada.
1878. *Ænigma*, Karsch, Z. ges. Naturw. (3) iii. p. 825. Type *Æ. australiana*, Karsch, ♀.—New South Wales.
1879. *Anahita*, Karsch, Verh. Rhein-Provinz. iv. p. 103. Type *A. fauna*, Karsch, ♀.—Japan.
1880. *Isoctenus*, Bertk. Mém. Cour. Acad. Belg. xliii. p. 61. Type *I. foliiferus*, Bertk., ♀ juv.—Brazil.
1880. *Ctenophthalmus*, Sim. Ann. Soc. Ent. Belg., Bull. p. 174. Type *C. lineatus*, Sim., ♀.—New Caledonia.
1890. *Ctenomma*, Thor. Ann. Mus. Genov. p. 133, nom. for *Ctenophthalmus*, Sim., nom. preoce.
1891. *Cupiennius*, Sim. Bull. Soc. Zool. Fr. xvi. p. 109. Type *C. Getazi*, Sim., ♀.—Costa Rica.
- 1891–92. *Nydia*, Thor. Rag. Mal. iv. vol. ii. p. 130. Type *N. punctata*, Thor., ♀ juv.—Sumatra.
- 1891–92. *Acantheis*, Thor. Sven. Ak. Handl. xxiv. (2) p. 61, note. Nom. for *Acanthoctenus*, Thor. Type *A. variatus*, Thor., ♀.—Sumatra.

* 1833. *Thaumasia*, Perty, Del. Anim. Bras. iii. p. 192, tab. xxxviii. 5. Type *T. scutilis*, Perty, ♂.—Provincia Piaulbiensi, Brazil.

There is no evidence as to whether this is a two-clawed or three-clawed form.

† Although *Acanthoctenus* does not at present claim kindred with the Cteninæ, I have left the name in this position for convenience' sake.

Notes on the Types of the above Genera.

CTENUS, Walck.

There is no question that the type of this genus is *C. dubius*, Walck., Tabl. Aran. 1805, p. 16, it being the only species here assigned to the genus. As to the identity of the type form, M. Simon says:—"Le *Ctenus dubius*, Wlk., type du genre *Ctenus* (Tabl. Ar.), qui existe encore au Muséum de Paris, rentre dans la division à laquelle le comte Keyserling a laissé le nom de *Ctenus*," and "Il est synonyme du genre *Phoneutria*, Perty" (Ann. Mus. Genov. 1884, p. 355)*.

Without, however, having seen the type of the genus, one would not like to be too sure of its affinities. Keyserling included all those ctenoid forms which were characterized by four or five pairs of spines beneath tibiae i. and ii. under *Ctenus*, Walck., in his more recent work Bras. Spinn. 1891. Possibly this extension would include *C. dubius*, Walck. In 1877, however, when Keyserling first differentiates the Ctenoid genera, he includes under *Ctenus*, with four pairs of subtibial spines, as distinct from *Microctenus*, with five pairs, three species only—*C. granadensis*, *C. bogotensis*, and *C. Saldei*. The first and the third belong to *Cupiennius*, Sim., while the second belongs to the new genus *Lycotenus*. So that I use the generic term *Ctenus* in this paper with mental reservations as to future possibilities.

PHONEUTRIA, Perty.

Walckenaer, in Ins. Apt. i. p. 369-70, includes both Perty's species under his older genus *Ctenus*, though he regards the former as distinct from the latter, in so far as concerns the curvature of the second row of eyes, straight in *Ctenus dubius*, recurved in *Phoneutria*.

Neither C. Koch, who describes and figures three forms to which he gives the names respectively *P. fera*, Perty, *P. ochracea*, C. K., and *P. rufibarbis*, Perty (Die Arach. xv. pp. 60, 62, and 64), all from Brazil, nor Keyserling, who figures the vulva of a species under the name *P. rufibarbis*, Perty (Verh. zool.-bot. Ges. Wien, 1881, p. 575, pl. xvi. fig. 21), definitely selects the type of *Phoneutria*; neither, subsequently, does either Gerstäcker, Simon, Karsch, Holmberg, or Bösenberg, each of whom assigns one or more species to this genus, select the type.

* M. Simon kindly sends me the following information, Oct. 26, 1896:—"Je n'ai pas retrouvé au muséum les types de *Ctenus jancirus*, *sanguineus*, *rufus*, *fuscus*, et *dubius*, Walckenaer, qui sont bien sûr perdus."

It is necessary, then, in case the genus should ever be re-established, to select one of the two species described under it by Perty as the type.

Although *P. rufibarbis* is the species first described, I am compelled to conclude that, unless the original type turns up, neither its generic affinities nor its specific identity will ever, or can ever, be established with any real certainty.

In coming to this conclusion one has to remark that in the figure of the eyes of *rufibarbis* (l. c. pl. xxxix. fig. 2) the anterior laterals are omitted, thus leaving us entirely in the dark as to the character of the eye-formula, while the figure of the spider is wholly unrecognizable; nor do the descriptions assist us to make good the deficiency in this respect.

Neither does the only definite character offered of the spider itself in the description help us to identify the species; and although it is probable that Perty is describing one of the larger *Cteninae*, there is no certainty in the matter. He says "ochracea, *chelicornubus* rufo-hirtis," a coloration which is to a greater or less extent characteristic of several other large species. There is, however, one character which, if it appeared on any form of large *Ctenus*, would go far to substantiate its identity—"abdomine albo-punctato. Seriebus tribus longitudinalibus punctorum alborum"—a character which receives double significance from Perty's figure. I am inclined to think that the artist fancied the picture incomplete without a middle row of spots between the two usually found in certain species of the genus; but if one is found so decorated, my conclusion would need reconsideration. At present it is characteristic of none of the forms yet taken and assigned to *rufibarbis*.

There are before us, then, three distinct species to which this character "*chelicornubus* rufo-hirtis" would equally apply—the one to which Keyserling has assigned the name *P. rufibarbis*, Perty, of whose vulva he publishes a figure in Verh. zool.-bot. Ges. Wien, 1881, p. 575, pl. xvi. fig. 21, and two species, with bright red hairs on the mandibles, from the Amazons. Keyserling probably concluded that his specimen was Perty's *rufibarbis* on account of this character, which is common to these three species at least; and I am thus compelled to conclude that *P. rufibarbis*, Perty, is a "forma ignota," whose specific characters are not recognizable. This being the case, I shall have much pleasure in naming *P. Pertyi* the form to which Keyserling assigned the name *P. rufibarbis*.

One cannot but conclude that its generic affinities also are no longer to be known with any *certainty*, whatever the

probability may be; and I therefore select *P. fera*, Perty, as the type of the genus *Phoneutria*.

The next question is, What are the generic and specific affinities of *this* form?

The figure (pl. xxxix. fig. 3) of the eye-formula leaves us in no doubt whatever that it is one of the forms which we now class as *Ctenidæ*. But, curiously enough, I have not yet, amongst some hundreds of examples from Messrs. Salvin and Godman's collection from Central America, from Keyserling's collection from South America, and from my own specimens collected on the Amazons, met with a single one whose eye-formula agrees with Perty's figure.

In this figure the second row of eyes is strongly *recurved* (concavity backwards). In all the New-World forms I have been able to examine this row is either *straight* or *procurved*.

It is a curious fact, however, that of numbers of *Cteninæ* which have come before me from the Old World, very many forms from Africa do present exactly the character claimed in virtue of Perty's figure for *Phoneutria*.

This fact undoubtedly accounts for the assignment of several African species by a number of authors to this genus.

I do not say that this eye-formula does not exist in the New World; but I do say that the genus *Phoneutria*, if separated from *Ctenus*, Walk., can only be done so on this character, as the authors in question have done, and any New-World form assigned to the genus or to the species *P. fera*, Perty, must present this character unmistakably.

The type of the form to which Keyserling assigned the name *Phoneutria fera*, Perty, is now before me, and in this specimen the second row of eyes is most distinctly *straight*. It cannot be called *fera* of Perty, and I have much pleasure in connecting with it the name of Count Keyserling, and shall refer to it below as *Ctenus Keyserlingii*.

As to the specific identity of the true *P. fera*, Perty, one is compelled to regard it as a "*forma ignota*" also, though its generic relations are certain so far as the eye-formula is concerned. Keyserling probably concluded that Perty's figure was erroneous; most likely it is, but without any description bearing out such a conclusion, one has no right to assume it to be so.

M. Simon has remarked of *Ctenus dubius*, Walck., that "*il est synonyme du genre Phoneutria.*" This may be so, but only if we include all forms with eyes of the second row straight or recurved under one comprehensive generic group.

For the present, there being no immediate necessity for deciding whether *Phoneutria* should be regarded as a synonym

of *Ctenus* or not, since we know of no New-World species which we can with certainty assign to this genus, I would prefer to leave it an open question.

I have felt it necessary to enter thus minutely into the matter because one ought not to rename forms which already have been assigned certain names without making quite clear one's reason for so doing.

The type of *Thaumasia*, Perty, is *T. senilis*, Perty, being the only species described under this generic title. *Leptoctenus agalenoides*, L. K., is the only species originally assigned to the genus; while of the two species of *Argoctenus*, L. K., *igneus* and *pictus*, the type not having been mentioned, I select the first-named as the type of the genus; but of the four forms originally assigned to *Microctenus* by Keyserling, I select the first, *M. ornatus*, Keys.; while *Caloctenus oculatus*, Keys., is the only species described in 1877, and therefore will be the type of *Caloctenus*, Keys. The type of the obscure genus *Anahita*, Karsch, since assigned by Keyserling to his interpretation of *Ctenus*, Walck., is the species *A. fauna*, Karsch, from Japan, being the only form then described. *Isoctenus foliiferus*, Bertk., ♀ juv., from Brazil, transferred by Keyserling to *Ctenus*, Wlk., is the only species described by Bertkau, and must be its type. Of *Ctenophthalmus*, Sim., for which, being a nom. preocc., Thorell proposed (Ann. Mus. Gen. 2, xi. (xxx.) 1891-92) the name *Ctenomma*, *C. lineatus*, Sim., remains alone as its type. Of the three species described under *Cupiennius*, Sim., who has not definitely selected the type, I select the first described, *C. Getazi*, Sim. The single species described by Thorell under *Nydia*, *N. punctata*, Thor., remains the type; while of *Acanthoctenus*, Keys., *A. spinigerus*, K., the only species originally assigned, is the type. Of *Acantheis*, Thor., a name substituted for *Acanthoctenus*, Keys., Thor., under which the single species *A. variatus*, Th., was originally described, this species remains the type. *Ænigma*, Karsch, has the single species, originally assigned to it, *Æ. australiana*, Karsch, as the type.

PART I.—(b) *List of Genera and Species of the New World, with Descriptions of new Species.*

Genus CTENUS, Walck., 1805.

1805. *Ctenus dubius*, Wlk. ♀ ♂, 20 mm. Type of genus.
Tabl. Ar. p. 18, pl. iii. figs. 21, 22. Spec. in coll. Mus.
Paris. Cayenne.

1833. *Ctenus Walckenaerii*, Griffith. ♀. An. King. Cuvier,

- pp. 417 and 426, t. xiii. There is no description, but a figure only, of one of the larger *Cteninæ*. *Hab. ignota*.—Walckenaer, *Ins. Apt.* ii. p. 459, doubts its distinctness from *C. janeirus* ♂. If he is right, Griffith's name has priority. (Pl. III. fig. 2.)
1837. *Ctenus fimbriatus*, Walck. ♀, 17.5 mm. *Ins. Apt.* i. p. 364. Cape of Good Hope, Africa.—Has been selected by M. Simon as the type of (*Titurius*) *Thalassius*. He informs me, however, that the type no longer exists.
1837. *Ctenus janeirus*, Walck. ♀, 16 mm. *Ins. Apt.* i. p. 364. South America, Rio de Janeiro.—It seems not improbable that this species belongs to the *Lycosidæ*, for Walckenaer mentions the great height of the clypeus, though no mention is made of the number of tarsal claws.
1837. *Ctenus sanguineus*, Walck. ♀, 23 mm. *Ins. Apt.* i. p. 365. South America, Brazil.
1837. *Ctenus unicolor*, Walck. ♂, 18 mm., ♀. *Ins. Apt.* i. p. 365. Brazil, Rio de Janeiro, and San Sebastian.—Walckenaer mentions that the palpal organs resemble those of the male of *Segestria*, and regards the species as identical with *Dolomedes concolor*, Perty. If this is the case, the latter name, of course, has priority.
1837. *Ctenus rufus*, Walck. ♀, 14.5 mm. *Ins. Apt.* i. p. 367. South America, French Guiana.—Possibly a *Lycoctenus*.
1837. *Ctenus fuscus*, Walck. ♀, 9 mm. *Ins. Apt.* i. p. 368. South America, French Guiana.—Possibly a *Lycoctenus*.
1837. *Ctenus rufibarbis* (Perty), Walck. ♀, 32 mm. *Ins. Apt.* i. p. 369. Rio Janeiro, Brazil.
1837. *Ctenus ferox* (Perty), Walck. ♀, 34 mm. *Ins. Apt.* i. p. 370. Rio Negro, Brazil.—Walckenaer accurately describes the eye-formula which he considers should be characteristic of Perty's *Phoneutria*, though he includes both these forms under his own more comprehensive *Ctenus*, merely distinguishing them as a separate group of the genus. Keyserling has expressed an opinion that Walckenaer was wrong in attributing this eye-formula to *Phoneutria*. Walckenaer could but follow Perty's figure, however convinced he might be that the figure itself was erroneous, unless he was in the position to give a fresh diagnosis of the genus from the original type.

1848. *Ctenus cinnamoneus*, C. K. ♂ juv.?, 27 mm. Die Arach. xv. pp. 5-8, fig. 1457. Loc. ignota.—Possibly this species belongs to *Lycoctenus*. The eyes suggest the genus *Thalassius*, Sim., but Koch makes no mention of the tarsal claws. The legs are 4, 1, 2, 3, according to his figure.
1848. *Ctenus concolor* (Perty), C. K. ♀, 17.5 mm. Die Arach. xv. p. 59, fig. 1458. Brazil.—C. Koch regards this species as identical with *Dolomedes concolor*, Perty, and *C. unicolor*, Wlk. The legs appear to be 4, 1, 2, 3, according to Koch's figure, and it very likely belongs to *Lycoctenus*.
1841. *Ctenus hibernalis*, Hentz. ♂, 13 mm. Bost. Soc. Journ. Nat. Hist. iv. p. 393. New Mexico.
1875. *Ctenus hibernalis*, Hentz. Spid. U. S. p. 35, pl. v. figs. 1-4. S. Alabama.
1841. *Ctenus punctulatus*, Hentz. ♀, 7 mm. Bost. Soc. Journ. Nat. Hist. iv. Alabama.
1875. *Ctenus punctulatus*, Hentz. Spid. U. S. p. 35, pl. v. figs. 5, 6. Texas, Arizona.
- 1873-4. *Ctenus giganteus*, Tacz. ♀, 45 mm.; ♂, 26 mm. Horæ Soc. Ent. Rossicæ, x. p. 91. Cayenne (♀ juv.), St. Laurent de Maroni (♂).—This appears to be, as Taczanowski surmises, the largest known species of *Ctenus*, though one would doubt the possibility of identifying it with any certainty from the description.
- 1873-74. *Ctenus bimaculatus*, Tacz. ♀, 11 mm. Horæ Soc. Ent. Rossicæ, p. 92. Uassa, N.E. corner of Brazil, close to French Guiana.—It is next to impossible to identify this species from the description, and, since the number of tarsal claws are not mentioned, it is equally difficult to judge of its systematic position. From the following passage, however,—“Corselet brun marron, largement bordé de fauve”—one would suspect it to belong to *Lycoctenus*, with *Dolomedine* characters. The following character may be of assistance towards future identification:—“Abdomen brun foncé, orné de deux grosses taches reniformes fauves blanchâtres. Pattes 4, 1, 2, 3.”
1875. *Ctenus rufibarbis* (Perty), Holmberg. Argentina.
1877. *Ctenus Saldi*, Keys. ♀, 27 mm. Verhand. z.-b. Ges. Wien, p. 685, t. ii. (viii.) fig. 53. Type in coll. Brit.

Mus. Nat. Hist. London. Mexico, Vera Cruz, and Cordova. A specimen also from Guatemala in coll. Keyserl.—This type ♀ is identical with a number of females from Messrs. Salvin and Godman's collection from Guatemala; one of these, submitted to M. Simon in Oct. 1896, was pronounced by him to be identical with his *Cupiennius oculatus*, 1891. The name *Saldei* therefore will have priority, and I retain the generic title given to this group by M. Simon for the present.

1877. *Ctenus granadensis*, Keys. ♂, 16 mm.; ♀, 15 mm. Verhand. z.-b. Ges. Wien, p. 682, t. ii. (viii.) fig. 51. Type in coll. Brit. Mus. Nat. Hist. London. New Granada, St. Fé de Bogotá.—This species belongs to the group of Cteninæ to which Simon has given the name *Cupiennius*. It appears to be closely allied to his *C. celerrimus*; since, however, there are no figures given, and the description is inadequate for the purpose, I am unable to settle the point.

1877. *Ctenus bogotensis*, Keys. ♀, 27 mm. Verhand. z.-b. Ges. Wien, p. 684, t. ii. (viii.) fig. 54. Type in coll. Brit. Mus. Nat. Hist. London. New Granada.—This species does not belong to the Cteninæ, but to *Lycoctenus*, having three tarsal claws and other Dolomedine characters.

1880. *Ctenus cyclothorax*, Bertk. ♂, 19 mm. Mém. Acad. Belg. t. xliii. p. 56, pl. i. fig. 18. Tijuca, Brazil.—Keyserling refers this species to his genus *Caloctenus*, Bras. Spinn. 1891, p. 143, since tibiæ i. & ii. bear seven pairs of long spines beneath. He says:—"Ctenus cyclothorax, Bert., gehört in die Gattung Caloctenus." Bertkau considers it = Walckenaer's group *Ambigua*, including *C. janeirus* ♀, and that it is probably the male of *C. janeirus*, while *C. cinnamomeus*, C. K., is the immature male of it.

1881. *Ctenus argentinus*, Holmb. ♀, 27 mm. An. Soc. Argent. p. 271. Argentina, Buenos Aires.—The spider, Holmberg remarks, is closely allied to *Ctenus bogotensis*, Keys., and *C. Saldei*, Keys. His excellent description shows that it very probably belongs to the same group as *Saldei* (*bogotensis* is a *Lycoctenus*), to which Simon gave the name of *Cupiennius*. Holmberg says:—"Femoribus lateribus dorsoque sordide albo nigroque viperino-maculatis. Patellarum tibiæque minus conspicuis lateribus notatis." This character would prove that it is probably distinct from *Saldei*, Keys., = *oculatus*, Sim., but very

closely allied to *Getazi*, Sim. He adds, "Abdomine . . . duabus maculis punctiformis, ventre quatuor lineis pallide rufescentibus prope basin nascentibus, mamillasque versus convergentibus signato." These characters ought to help an identification, except that it is not easy to see what is meant by "duabus maculis," whether two only, or two on either side; if the latter, it shares this character with *Salvi*. Holmberg also remarks that tibiae i. and ii. possess 2, 2, 2, 2, metatarsi i. with 2, 2, 3, metatarsi ii. with 2, 2, 1, 2 spines beneath; also "mandibularum rima (aut canali) cum crista externa, seu postica, 4-dentata." Thus showing clearly its affinities to *Cupiennius*.

1881. *Ctenus rubripes*, Keys. ♀, 28 mm. Verhand. z.-b. Ges. Wien, p. 577, pl. xvi. fig. 23. Type in coll. Dr. Koch, Nürnberg. Central America, Panama.—Since, according to Keyserling, this species has four pairs of spines under the anterior tibiae and also two lateral ones (in the female sex), it is not improbable that it belongs to *Cupiennius*, close to *C. granadensis*, Keys. The type is not in the Museum.

1884. *Ctenus oculifera* (Karsch), Sim. See sub *Phoneutria oculifera*, 1879. Mexico.

1887. *Ctenus hybernalis*, Hentz, V. Hasselt. ♀ juv. Tijds. Ent. p. 227. Recorded from the Island of Curaçao, Antilles.

1891. *Ctenus nigriventer*, Keys. ♀, 30 mm. Bras. Spinn. p. 144, t. iv. fig. 98. Type in coll. Brit. Mus. Nat. Hist. London. Rio Grande do Sul (*Dr. v. Ihering*).—This form is very closely allied to *C. boliviensis*, sp. n., described below, as well as to *C. Keyserlingii*. The external plate of the vulva is, however, shorter in proportion to the breadth than in either of the two latter species (*cf.* Pl. III. fig. ii. d, below).

1891. *Ctenus ferus* (Perty), Keys. ♀, 30 mm. Bras. Spinn. p. 145. Type in coll. Brit. Mus. Nat. Hist. London. Rio de Janeiro (*Dr. Göldi*).—I need not here repeat my reasons for changing the name of this species to *C. Keyserlingii* (*cf.* sub *Phoneutria fera*, Perty, above). I may add, however, that it is very unlikely that a species found at Rio Janeiro would be identical with one taken on the Rio Negro. The vulva having never to my knowledge been figured, I give one from Keyserling's type (*cf.* Pl. III. fig. ii. c).

1891. *Ctenus vehemens*, Keys. ♀, 15·6 mm. Bras. Spinn. p. 146, t. iv. fig. 99. Type in coll. Brit. Mus. Nat. Hist. London. Espirito Santo, Brazil (*Dr. Göldi*).
1891. *Ctenus ornatus*, Keys. Bras. Spinn. p. 146. See sub *Microctenus* below. Neu Freiburg.—N.B. The date 1876 quoted in Bras. Spinn. as that of the Vienna publication is not correct; it should be 1877. Type in coll. Dr. Koch, Nürnberg.
1891. *Ctenus velox*, Keys. ♂, 10·7 mm. Bras. Spinn. p. 147, tab. iv. fig. 100. Type in coll. Brit. Mus. Nat. Hist. London. Atto da Serro, Neu Freiburg (*Dr. Göldi*). —Keyserling does not mention the spur on the posterior coxæ which distinguishes this form from all other males which I have seen.
1891. *Ctenus brevipes*, Keys. ♀, 11·4 mm. Bras. Spinn. p. 148, t. iv. fig. 101. Type in coll. Brit. Mus. Nat. Hist. London. Brazil, Rio Grande do Sul (*Dr. v. Ihering*).
1891. *Ctenus minusculus*, Keys. ♀, 12·3 mm. Bras. Spinn. p. 149, t. iv. fig. 102. Type in coll. Brit. Mus. Nat. Hist. London. Brazil, Rio Grande do Sul (*Dr. v. Ihering*).
1891. *Ctenus longipes*, Keys. ♂, 17·4 mm. Bras. Spinn. p. 150, t. iv. fig. 103. Type in coll. Brit. Mus. Nat. Hist. London. Brazil, Rio Grande do Sul (*Dr. v. Ihering*).
1891. *Ctenus teniatus*, Keys. ♂, 10·4 mm. Bras. Spinn. p. 151, t. iv. fig. 104. Type in coll. Brit. Mus. Nat. Hist. London. Brazil, Rio Grande do Sul (*Dr. v. Ihering*).
1891. *Ctenus griseus*, Keys. ♀, 20·5 mm. Bras. Spinn. p. 152, t. iv. fig. 105. Type in coll. Brit. Mus. Nat. Hist. London. Brazil, Taquara do Mundo novo (*Dr. v. Ihering*).
1891. *Ctenus medius*, Keys. ♀, 19 mm. Bras. Spinn. p. 153, t. iv. fig. 106. Type in coll. Brit. Mus. Nat. Hist. London (both examples). Brazil, Rio Grande do Sul (*Dr. v. Ihering*), Rio de Janeiro (*Dr. Göldi*).
1892. *Ctenus mordicus*, O. Cambr. ♂, 20 mm.; ♀, 27 mm. Biol. Centr.-Amer., Arach. p. 100, t. xiii. figs. 6, 7. Guatemala.

Genus PHONEUTRIA, Perty, 1833.

1833. *Phoneutria rufibarbis*, Perty. ♀, 32 mm. Del. Anim. Art. iii. p. 197, tab. xxxix. 2. Province of the Rio Negro, *Ann. & Mag. N. Hist.* Ser. 6. Vol. xix. 5

Brazil.—I have set forth above reasons for considering that there is not sufficient evidence as to the identity of this form. None of the authors who have adopted Perty's name mention that they have seen the original type specimen, so that one can but conclude that their only evidence is drawn from Perty's description and figures. These, in the case of *rufibarbis*, are sufficient neither for generic purposes nor for specific identification. I have very little doubt that the spider figured is one of the three species known to us, characterized by red-haired mandibles and the striped pedipalpi; but one cannot be certain on such slender evidence as is offered to us in the figures.

1833. *Phoneutria fera*, Perty. ♀, 34 mm. Del. Anim. Art. iii. p. 197, tab. xxxix. 3. Province of the Rio Negro, Brazil.—The above remarks apply also to a certain extent to this species. The specific identity cannot be determined. I have little doubt that the figure of the eyes is entirely wrong; and that Keyserling was right in his assumption that the two large Cteninæ which he called *ferus* and *rufibarbis* were congeneric with Perty's species. There are several species, however, of both forms, either of which might equally well have been Perty's original form; but no one, not even the "earliest author," has any right to assume that Perty's figure of the eyes is wrong, and to act upon that assumption. If the figure is correct, then Keyserling's *ferus* is not the same as Perty's. I have assumed the figure to be correct, and have therefore given to Keyserling's *ferus* a new name.

1848. *Phoneutria fera*, Perty, C. Koch. ♂, 29 mm.; ♀, 34 mm. Die Arach. xv. p. 60, fig. 1459. Brazil.—Koch's beautiful figure leaves no doubt that he had one or other of the large Cteninæ before him, while the figure of the eyes and the red hue of the mandibles in the full figure suggest the form described below as *C. Reidyi*, though one cannot be certain on this point. I have not met with any form in which the patellæ of the legs are distinctly red as he has depicted them. Whatever this species may be (and possibly the type is still in existence), one cannot consider it *P. fera*, Perty, nor *Ctenus ferus*, Walck., with both of which Koch regards his species as identical.

1848. *Phoneutria rufibarbis*, Perty, Koch. ♀, 29 mm. Die Arach. xv. p. 63, fig. 1461. Brazil.—Judging from the figure, it seems highly probable that this species is identical

with the form described below as *C. Andrewsii*, though there is not sufficient evidence to make it a certainty.

1848. *Phoneutria ochracea*, C. K. ♂, 26.5 mm. Die Arach. xv. p. 62, fig. 1460.—I have not met with any form which agrees with this figure and description. Possibly the type is also in existence.

1879. *Phoneutria oculifera*, Karsch. ♀, 30 mm. Z. ges. Naturw. (3) iv. p. 350, with figure of vulva. Mexico.—Of this species Karsch says:—"der innere Falzrand der Mandibeln trägt, von der Basis der Klaue entfernt, 4 sehr starke schwarze Zähne, während der äussere deren nur 2 besitzt, sehr nahestehenden . . . *Phoneutria Salzi* (Keys.)." Whether this form really belongs to the group to which Simon gave the name *Cupiennius* I cannot say. One would think probably not. The form of the vulva resembles very closely that of *Lycotenus bogotensis* (Keys.) and *L. brunneus*, sp. n.; but, as Karsch makes no mention of the number of the tarsal claws, it is impossible to say for certain. In any case it does not belong to the genus *Phoneutria*, Perty. Simon, in 1884, regards this species as congeneric with (*Titurius*) *Thalassius*, type *T. fimbriatus*, Walck. I have not met with any form of this genus from the New World.

1881. *Phoneutria rufibarbis* (Perty), Keys. ♀, 33.2 mm. Verhand. z.-b. Ges. Wien, p. 576, t. xvi. fig. 22. Type in coll. Dr. Koch. Brazil, Neu Freiburg.—This appears to be a larger spider than that figured and described by Koch. Keyserling mentions the spines of the tibia as five pairs. Keyserling has described this form and figured the vulva, thus giving sufficient evidence that it is neither *Reidyi* nor *Andrewsi*. For reasons given above I have named this latter form *C. Pertyi*, since it cannot bear the name *rufibarbis*.

Genus CUPIENNIUS, Sim.*

1891. *Cupiennius Getazi*, Sim. ♀, 25 mm. Bull. Soc. Zool. Fr. xvi. p. 109. Costa Rica.

* Genus CUPIENNIUS, Simon, 1891.

Tibiæ i. and ii. with four pairs of spines beneath, with two lateral spines on each side in ♀ and ♂. Protarsi i. and ii. with three pairs of spines beneath and a single small stout spine at apex beneath in all four pairs. Legs 1—2, 4—3. No dorsal spines above tibiæ i., ii., iii., and iv. No spines on patellæ i., ii., iii., and iv. Lower margin of fang-groove

1891. *Cupiennius celerrimus*, Sim. ♂, 12 mm.; ♀, 15 mm. Bull. Soc. Zool. Fr. xvi. p. 110. Teffé, Amazons.—Apparently very closely allied to *C. granadensis*, Keys.
1891. *Cupiennius oculatus*, Sim. ♀, 26 mm. Bull. Soc. Zool. Fr. xvi. p. 110. Guatemala.—This species is identical with the next but one, *C. Salèi*, Keys., also from Guatemala; the name *Salèi* has priority. See under *Ctenus Salèi* above.
1877. *Cupiennius granadensis* (Keys.)? See sub *Ctenus granadensis* above.
1877. *Cupiennius Salèi* (Keys.)? Syn. *C. oculatus*, Sim. 1891. See under *Ctenus Salèi* above.

Genus MICROCTENUS, Keys., 1877.

1877. *Microctenus ornatus*, Keys. ♀, 19.7 mm. Verhand. z.-b. Ges. Wien, p. 687, t. ii. (viii.) fig. 62. Type in coll. Dr. Koch. Neu Freiburg, Brazil.—This species was included under *Ctenus* by Keyserling in Bras. Spinn. 1891; see above.
1877. *Microctenus obscurus*, Keys. ♀, 17 mm. Verhand. z.-b. Ges. Wien, p. 689, t. ii. (viii.) fig. 58. Type in coll.

with four teeth, upper with three. Second row of eyes procurved. Lateral anteriors midway between posterior centrals and posterior laterals, but not in the same line. Central anteriors one third smaller than posteriors. Ocular quadrangle as broad as long, much narrower in front. Clypeus equal to $1\frac{1}{2}$ diameter of anterior centrals. Tarsal claws 2. Scopula beneath tarsi and protarsi i. and ii., apex of protarsus iii., absent on protarsus iv., present on tarsi iii. and iv. Patella and tibia i. much longer than patella and tibia iv.

Species.

A. Femora of legs spotted or annulated beneath.

1. Femora marked beneath with numerous fine spots, having also an apical annula ♀, 25 mm. *C. Getazi*, Sim.
2. Femora marked beneath with three distinct annulæ, two median and one apical ♀, 26 mm. *C. Salèi*, Keys. (*C. oculatus*, Sim.).
3. In all probability add ♀, 27 mm. *C. argentinus*, Holmb.

B. Femora not annulated or spotted.

- a. ♂, 12; ♀, 15 mm. *C. celerrimus*, Sim.
- b. ♂, 16; ♀, 15 mm. *C. granadensis*, Keys.

Brit. Mus. Nat. Hist. London. New Granada, St. Fé de Bogotá.—Included under *Ctenus* by Keyserling in Bras. Spinn. 1891.

1877. *Microctenus adustus*, Keys. ♀, 11 mm. Verhand. z.-b. Ges. Wien, p. 690, t. ii. (viii.) fig. 58. Type in coll. Brit. Mus. Nat. Hist. London. New Granada, St. Fé de Bogotá.—Included under *Ctenus* by Keyserling in Bras. Spinn. 1891.

1877. *Microctenus parvus*, Keys. ♂, 8.2 mm. Verhand. z.-b. Ges. Wien, p. 692, t. ii. (viii.) figs. 55, 56. Type ♀ in coll. Brit. Mus. Nat. Hist. London. New Granada, St. Fé de Bogotá.—Included under *Ctenus* by Keyserling in Bras. Spinn. 1891.

1881. *Microctenus curvipes*, Keys. ♂, 18 mm. Verhand. z.-b. Ges. Wien, p. 579, t. xvi. fig. 24. Type in coll. Dr. Koch, Nürnberg. Panama.

1887. *Microctenus humilis*, Keys. ♀, 11.4 mm. Verhand. z.-b. Ges. Wien, p. 456, pl. iv. fig. 35. Type in coll. Cambridge Museum, Mass., U.S.A. Central America, Nicaragua.

1886. *Microctenus ravidus*, E. Sim. ♀, 16 mm. Bull. Soc. Zool. Fr. ii. N. Patagonia.—Without figures it is next to impossible to ascertain the species. It belongs, however, to that group in which the second row of eyes is procurved, the ocular quadrangle broader than long. The anterior centrals smaller, closer together, and the clypeus equal to one diameter of anterior central eyes.

Genus ISOCTENUS, Bertk., 1880.

1880. *Isoctenus foliiferus*, Bertk. ♀ juv., 11 mm. Mém. Cour. Acad. Belg. xliii. p. 61. Brazil, Chapeo d'uvas, Rio de Janeiro.—According to Keyserling, Bras. Spinn. 1891, p. 143, this species belongs to *Ctenus*, Keys. Bertkau mentions five pairs of spines beneath tibiae i. and ii., so that very likely there is no real generic distinction; but one cannot say without seeing the type.

1880. *Isoctenus bicolor*, E. van Beneden. ♀ juv., 16 mm. Bull. Acad. Belg. (2) xlix. p. 657. Loc. ignota, probably Brazil.—There is very little evidence as to its identity to be drawn from the description, save that it belongs to the group here characterized as *Ctenus*. "Tibiae i. and ii. with five pairs of spines beneath." Van Beneden himself says "*Ctenus*, Keys., nec Walck."

Genus CALOCTENUS, Keys., 1877.

1877. *Caloctenus aculeatus*, Keys. ♀, 4 mm. Verh. z.-b. Ges. Wien, p. 697, t. ii. (viii.) fig. 59. Type in coll. Brit. Mus. Nat. Hist. London. New Granada, St. Fé de Bogotá. —Having carefully examined the type specimen, I find it to be a *two-clawed* form.
1880. *Caloctenus major*, Keys. ♀, 19 mm. Verh. z.-b. Ges. Wien, p. 337, t. iv. fig. 31. Type in coll. Mus. Warsaw. Peru.
1882. *Caloctenus major*, Keys., Hasselt. IV. 3de Afl. Nat. Historie Midden-Sumatra, pl. v. fig. 13. Figure of vulva.
1880. *Caloctenus variegatus*, Bertk. 15.5 mm. Mém. Acad. Belg. t. xliii. p. 59, t. i. fig. 19. 'Bras. Spinn.' Theresiopolis (San Jao de Ré), Brazil.—Since Bertkau remarks that tibiae i. and ii. have seven pairs of spines beneath, it is probable that this spider belongs to the genus in which he placed it, though why he did not also place *cyclothorax* in the same genus does not appear.
1891. *Caloctenus cyclothorax* (Bertk.), Keys. Bras. Spinn. 1891, p. 143, note.—This species belongs, so far as description allows one to judge, to *Caloctenus*, Keys. See sub *Ctenus* above.

Genus LEPTOCTENUS, L. K., 1875?

1888. *Leptoctenus byrrhus*, Sim. ♀, 11 mm. Ann. Soc. Ent. Fr. viii. p. 210. Mexico.—L. Koch's genus *Leptoctenus* is characterized by tibiae i. and ii. having four pairs of spines beneath. Clypeus only a little higher than the diameter of the eyes of the first row. Second row of eyes straight. Tarsal claws 2. Scopula absent. Labium half as long as maxilla, the latter much attenuated at base.
1888. *Leptoctenus Tenkatei*, v. Hasselt. ♀, 17.5 mm. Tijdsch. Ent. xxxi. pt. 3, p. 192. Surinam.—Van Hasselt gives the number of tarsal claws as two, but refers the species to the "Lycosidæ."

Genus ACANTHEIS, Thor., 1891-2.

1890. *Acanthoctenus*, Keys., Thor. Ann. Mus. Gen. 2, x. (xxx.) Sept. 1890, including:—1, *A. variatus*, Th.; 2, *A.*

dimidiatus, Th.; 3, *A. latus*, Th., 1891-92. Sumatra. —These three species do not possess the calamistrum and cribellum characteristic of *Acanthoctenus spinigerus*, Keys. (type), according to Thorell. Thorell has more recently withdrawn his species and placed them under the name *Acantheis*. In Hist. Nat. Ar. i. p. 229, note, Simon refers them to the subfam. Cteninæ in the fam. Clubionidæ. Of their tarsal claws Thorell says "Unguiculi tarsorum bini graciles, longi, fortissime et æqualiter curvati."

1891-2. *Acantheis*, Thor. Sv. Ak. Handl. xxiv. (2) p. 61, note, is the name given by Thorell to include *Acanthoctenus variatus*, *dimidiatus*, and *latus*, from Sumatra. Not having seen the types, I am unable to judge of their affinities; but, from Thorell's description, one would gather that they belong to the two-clawed "Cteninæ." On p. 61 he says "Ad species illas asiaticas recipiendas, quas ad *Acanthoctenum* retuli et quæ organis illis carent, novum *Cteninarum* genus est creandum, quod *Acantheis* vocari potest."

Genus NYDIA, Thor., 1891-2.

1891-2. *Nydia*, Thor. Rag. Mal. iv. vol. ii. p. 130. Type *N. punctata*, Th., ♀ juv. Sumatra; received from Rev. O. P. Cambridge (*Forbes*).—It appears probable that this species, too, belongs to the Cteninæ. Thorell says that the eyes are in three rows, central row strongly recurved. Ocular quadrangle half as broad again behind as in front and a little longer than its anterior breadth. Labium transverse, truncate at apex. "Tarsi unguiculis binis muniti."

Genus ÆNIGMA, Karsch.

1878. *Ænigma australiana*, Karsch. ♀, 11 mm. Z. ges. Naturw. (3) iii. p. 825. Type of genus. New South Wales.—Karsch says that the eyes are in two rows, the anterior somewhat shorter. He considers it to be near *Dolomedes* and *Ocyale*, adding "aber es fehlt die Afterklaue des Tarsus der Beine." One cannot judge well from the description of its systematic position; but I should expect to find it somewhere near *Zora*.

Table of New-World Genera of the Family Ctenidæ.**Table of Genera.*

- A. Tibiæ i. and ii. with 4 or 5 pairs of spines beneath. Protarsi i. and ii. with 3 pairs of spines beneath †.
- I. Tibiæ i. and ii. with 5 pairs of spines beneath ; no lateral spines in the female sex (apparently always present in the males). 1—1—1 dorsal spines on tibiæ iii. and iv. Two lateral spines on patellæ iii. and iv. Lower margin of fang-groove with 5 teeth ‡.
- a. Second row of eyes straight or more or less procurved *Ctenus* §.
- b. Second row of eyes distinctly recurved *Phoneutria*, Perty ||.
- II. Tibiæ i. and ii. with 4 pairs of spines beneath ; females, as well as males, with two pairs of lateral spines, basal and distal. No dorsal spines on tibiæ iii. and iv. No spines on patellæ iii. and iv. Lower margin of fang-groove with 4 teeth. (Second row of eyes strongly procurved.) *Cupiennius*, Sim.
- Protarsi i. and ii. with 3 pairs of spines beneath, 2 pairs of lateral spines, and 1 small apical spine beneath.
- B. Tibiæ i. and ii. with 7 pairs of very long spines beneath. Protarsi i. and ii. with 7 pairs of long spines beneath *Caloctenus*, Keys.

The affinities of the genus *Thaumasia*, Perty (*T. semilis*), are very doubtful, the figure of the eyes alone offering no sure criterion, while the figure of the spider seems to suggest *Lycosid* affinities.

* I omit *Leptoctenus*, L. K. (to which genus a single species from Costa Rica has been assigned by Simon), since I do not know the genus at all, while *Microctenus*, Keys., is included under *Ctenus* in Bras. Spinn. 1891, Keys.

† In these calculations are included the small apical spines ; care must be taken not to include a lateral spine, nor to exclude a lower spine, slightly inclining to a lateral situation.

‡ The fifth tooth at the basal angle of the fang-groove is in this group very small, and may easily escape notice, but is always, in all specimens which have come before me, unmistakably present, except in a few instances of individual abnormality. In the four-toothed forms there is no trace of this denticule.

§ The type of *Ctenus*, Walck.—*C. dubius*—exhibits, according to his figure (Tabl. Aran. 1805, pl. iii. fig. 22), the straight second row of eyes with a labium longer than broad (fig. 21). His diagnosis of the genus also states that the second row of eyes is straight.

|| There is no evidence that the true *Phoneutria fera* of Perty possessed the characters included under diagnosis A, the only recorded character being that set down at b.

Genus CTENUS (? *Ctenus*, Walck.), provisional.

Diagnosis.—Eyes in three rows, second row straight, by anterior margins, or more or less procurved. Ocular quadrangle longer than broad, as long as broad, or broader than long (*i. e.* comparing its outside length with the outside breadth of transverse space occupied by posterior central eyes); anterior side equal to or narrower than posterior side of quadrangle. Anterior centrals subequal to or less than posterior centrals. Carapace bluffly rounded behind, in some forms abruptly precipitous. Tibiæ i. and ii. with five pairs of spines beneath; no lateral spines in female (present in male). Protarsi i. and ii. with three pairs of spines beneath, no central apical spine beneath; protarsi iii. and iv. with a single central apical spine beneath. Tarsi i. and ii. and protarsi i. and ii. with scopula beneath. Protarsus iii. with apical scopula, iv. without scopula. Tarsi iii. and iv. with scopula. Tibiæ iii. and iv. with 1—1—1 dorsal spines. Patellæ i. and ii. without spines, iii. and iv. with one spine on each side.

Tarsal claws 2. Claw-tuft present. Patella and tibia i. equal to or much longer than patella and tibia iv. Lower margin of fang-groove with 5 teeth (4 large and 1 small*), upper margin with 3 (1 large and 2 small). Clypeus varying from twice the diameter of anterior centrals to half their diameter.

Examples:—*C. Reidyi*, sp. n., *C. sinuatipes*, sp. n., *C. minor*, sp. n., &c.

Table of Species.

Males.

- I. Carapace not raised and gibbous at base above.
Tibia and tarsus of pedipalp set with thick velvet pad of short soft hair on inner side . . . *C. boliviensis*, sp. n.
- II. Carapace distinctly raised and gibbous at base above (except *longipes*), slightly bilobate.
Tibia and tarsus of pedipalp without pad of soft hair on inner side.
 - A. Protarsus iv. almost or quite straight. Ocular quadrangle broader than long. Second row of eyes straight by anterior margins (in *longipes* slightly procurved).
 - i. Length of carapace equal to patella and tibia iii. (Abdomen unicolorous above, black below, with central, pale, longitu-

* This character is not absolutely reliable; in some females of the same species the number varies from 5—3.

dinal, lanceolate band. Tibial spur of pedipalp longer than broad, directed forwards, obliquely truncate at apex, simple at base.)

- a. Size much larger, 17 mm. Abdomen unicolorous above *C. rectipes*, sp. n.
- b. Size much smaller, 7.5 mm. Abdomen with pale band above..... *C. minimus*, sp. n.
- ii. Length of carapace less than patella and tibia iii. (Abdomen with pale central line or scalloped band above.)
 - a. Protarsus iv. quite straight.
 - 1. Abdomen with central black band below. Tibial spur of pedipalp short, directed forwards, very broad at apex, as broad as long; lower anterior angle sharp. Central lobe of palpal organs small, as long as broad. Tarsus of pedipalp without spur behind *C. nigritus*, sp. n.
 - 2. Abdomen unicolorous brown below. Tibial spur of pedipalp short, blunt, rounded at apex, set obliquely to axis of joint. Central palpal lobe large, much longer than broad. Tarsus of pedipalp with spur at base behind *C. longipes*, Keys.
 - b. Protarsus iv. slightly sinuous.
 - 1. Size larger, 15.5 mm. Tibial spur twice as long as breadth of base, directed forwards; (apex acute). Apical third of protarsus iv. concave on inner side *C. spiculus*, sp. n.*
 - 2. Size smaller, 10.5 mm. Tibial spur as long as breadth of base, directed forwards, deeply emarginate on lower side; (apex acute) *C. planipes*, sp. n.*

* The characters enclosed in brackets are not intended to alternate with others in the table, but merely to serve as a further clue to the identity of the form.

C. spiculus and *planipes* should more properly, by the form of protarsus iv. and the tibial spur, fall into section B, but the eye-position brings them into section A. All the above species (*curripes* I cannot answer for, since I have not seen the type) can be readily separated also by the character of the central lobe and marginal spine of the palpal organs. These characters unfortunately do not always fit in with those furnished in the above table.

I am unwilling to tabulate the characters of *taniatus*, *parrus*, and *velox*, for they appear to stand somewhat apart from any of the forms included above. The former may readily be recognized by the comparatively short legs, small size, and quadrate tibia of pedipalp, as long as broad; tibial spur long, curved, blunt, directed outwards and forwards, recurved at apex. *Velox* may be instantly recognized by the short spur beneath coxa iv.; excepting for the eye-formula, it appears to come near *C. planipes*; its posterior protarsi are straight, as also are those of *taniatus*.

B. Protarsus iv. more or less decidedly sinuous.

Ocular quadrangle longer than broad; second row of eyes procurved.

- i. Basal section itself of protarsus iv. curved, its concavity lying on outer side of segment, its inner side set with numerous stout, short, close-lying spines; three, more separate, more conspicuous, and set obliquely to axis of segment, situate towards apical end of basal curve. Apical section set on inner side beneath with row of black cuspules, short spines, and bristles.

- a. Size larger, 22 mm. Protarsus iv. much more strongly curved; basal section fringed along margin of outer concavity with long silky yellow hairs. Tibial spur of pedipalp directed forwards, as long as width of segment; lower angle very acute, obliquely truncate at apex (much longer than in *rectipes*). Tarsus iv. set at almost right angles to protarsus on inner side

C. medius, Keys.

- b. Size smaller, 18 mm. Protarsus iv. much less sinuous, but general character the same. Outer margin of basal concavity not fringed with hairs. Tibial spur of pedipalp set at right angles to segment, curved forwards, trifid (or quadrifid) at apex, with stout spine at base behind. Tarsus iv. set in the same straight line with protarsus

C. serratipes, sp. n.

- ii. Basal section of protarsus iv. almost or quite straight, its central concavity lying on inner side. Inner margin of basal section without row of numerous curved spines. Apical section smooth beneath and on inner side.

- a. Basal angle of sinuous section set with stout, curved, chisel-headed spine lying between two stout long simple spines. Tibial spur stout, short, set at right angles to segment, bifid at apex

C. sinuatipes, sp. n.

- b. Basal angle of sinuous section with stout chisel-headed spine. Tibial spur long, slender, curved forwards and recurved at apex (sec. Keyserling's figures)

C. curvipes, Keys.

Females.

- 1 Tibia and tarsus of pedipalp with thick pad of short hair on the inner side. Patella and tibia i. much longer than patella and tibia iv. (Ocular quadrangle slightly longer than

broad, not or only very slightly narrowed in front. Eyes of ocular quadrangle subequal, anteriors only slightly smaller. Second row of eyes straight by anterior margins. Legs i. equal to or longer than legs iv.)

- A. Tibia and tarsus of pedipalp black, with two narrow pale longitudinal lines in front. Vulva broad, without pair of dark central longitudinal ridges.

a. Size larger, 40 mm. *C. Reidyi*, sp. n.

b. Size smaller, 32-33 mm.

1. Legs i. longer than legs iv. Vulva emarginate anteriorly. *C. Andrewsii*, sp. n.

2. Legs i. equal to legs iv. Vulva not emarginate anteriorly *C. Pertyi**, nom. nov.
(*C. rufibarbis*, Keys.)

- B. Tibia and tarsus of pedipalp unicolorous dark brown, without narrow pale lines in front. Vulva elongate, with pair of parallel, central, longitudinal ridges.

a. Abdomen with central, dorsal, pale scalloped band (besides lateral pale bands —*boliviensis*).

1. Size much larger, 40 mm. Ventral surface of abdomen without broad black longitudinal band *C. boliviensis*, sp. n.

2. Size much smaller, 30 mm. Ventral surface of abdomen with broad black longitudinal band *C. nigriventer*, Keys.

b. Abdomen unicolorous above, brown . . . *C. Keyserlingii*, nom. nov.
(*C. ferns*, Keys.)

- II. Tibia and tarsus of pedipalp without pad of short hair on inner side. Patella and tibia i. equal to or only slightly longer than patella and tibia iv. (Legs i. shorter than legs iv.)

- A. Ocular quadrangle slightly longer than broad, scarcely narrower in front. Eyes of quadrangle subequal, anteriors slightly smaller.

a. Second row of eyes straight by anterior

* There are no really reliable characters other than those drawn from small comparative differences of measurement, difficult and tedious to verify, to be found in these closely allied forms. Really good figures of the *vulva* are alone trustworthy and, as a rule, practicable. In the majority of cases Keyserling's figures suffice for distinguishing the above species.

C. adustus, Keys. (of which the type specimen is before me), is an immature ♀, and one can scarcely regard it as a good species amongst forms which are themselves hardly to be distinguished, save by characters which are manifest only in the adult.

I am at a loss to understand how experienced arachnologists, almost without exception, with countless adult forms to be described, can persuade themselves to base new species, and even new genera, on immature specimens, these very specimens even sometimes being mutilated, worn out, and without legs, as the authors themselves confess.

margins. Patella and tibia i. longer than patella and tibia iv. Size larger, 27 mm. Vulva with a pair of oval, convex, obliquely convergent tubercles on anterior portion

C. medius, Keys.

b. Second row of eyes procurved (straight line touching anterior margins of centrals passing through or above centres of laterals). Patella and tibia i. equal to patella and tibia iv. Size smaller, 20-12 mm.

1. Carapace equal in length to patella and tibia iii. (Vulva without oval tubercles in front, with pair of widely separate oval-elongate furrows on each side in front.)

C. sinuatifipes, sp. n.

2. Carapace longer than patella and tibia iii.

* Size larger, 20.5 mm. Patella and tibia i. slightly longer than patella and tibia iv. (13.7—12.3 mm.)

C. griseus, Keys.

** Size smaller, 12.3 mm. Patella and tibia i. equal to patella and tibia iv. (6.7—6.8 mm.)

C. minusculus, Kevs.

B. Ocular quadrangle as broad as long or broader than long, distinctly narrower in front. Anterior eyes of quadrangle distinctly smaller.

a. Patella and tibia i. longer than patella and tibia iv. (9.9—7.5 mm.).

* Size smaller, 15·3 mm. Legs i. scarcely shorter than legs iv. (26—26·5 mm.).

C. variegatus, Bertk.

** Size larger, 17 mm. Legs i. distinctly shorter than legs iv. (25—27.8 mm.).

C. obscurus, Keys.

b. Patella and tibia i. equal to (or almost) patella and tibia iv. (p. t. i. 8·7—p. t. iv. 8·2, *vehemens*; p. t. i. 5·1—p. t. iv. 5·4, *brevipēs*), slightly longer, slightly shorter, the rest equal.

1. Second row of eyes procurved, straight line touching anterior margins of centrals passing through centre of laterals.

C. similis, sp. n.

2. Second row of eyes straight by anterior margins.

* Clypeus narrower, equal to one diameter of anterior central eyes.

aa. Size larger, 15.6—17 mm.

Separable by form of vulv

C. ornatus, Keys.

C. vehemens, Keys.

bb. Size smaller, 11—11.4 mm.

Separable by form of vulv

C. brevipes, Keys.

C. adustus, Keys.

C. minor, sp. n.

** Clypeus broader, equal to two diameters of anterior central eyes . . .

C. albofasciatus, sp. n.

Ctenus Reidyi *, sp. n., ♀.

Hab. Forest, Santarem.

Type in coll. Brit. Mus. Nat. Hist. London, 1896.

♀. Length, including mandibles, 40 mm.

Colour.—Carapace orange-mahogany, clothed with short golden-brown hairs. *Abdomen* dull yellow-brown, clothed with golden-brown hairs. *Mandibles* stout, black, densely clothed with bright orange hairs in front. *Coxæ of pedipalp* and *sternum* dark brown, the latter clothed with golden-brown hairs.

Legs. Coxa, trochanter, femur, and tibia orange-brown; protarsus and tarsus dark brown, entirely clothed with golden-brown pubescence.

Pedipalp. Femur and patella orange-brown; tibia and tarsus clothed with a broad band of black pubescence on inner side, a thin line of grey pubescence, and another broader band, black, followed on the outer side with a broad band of grey pubescence, appearing on the upperside as two narrow grey lines.

Structure.—Carapace 16 mm. long, 13.5 broad; abruptly inclined behind, slightly raised towards caput. Central groove distinct, segmental stria just discernible.

Eyes. Laterals situated on a strong tubercle; diameter of anteriors half that of posteriors, situate one diameter from them. Second row straight by anterior margins; the four centrals situated in a quadrangle, slightly longer than broad; posterior centrals very slightly larger.

Mandibles with a shiny tubercle at base on outer side. Fang-groove with 5 teeth on outer margin, 3 on inner margin.

Legs (1. 4) 2. 3. Every segment except the first and last spinose. Tibiæ i. and ii. with a double series of 5, of iii. and iv. of 3, stout spines beneath.

Protarsi i. and ii. with a double series of 3 spines, of iv. with an irregular series beneath.

Tarsi, protarsi i. and ii., and apex of tibia slightly, tarsi and protarsus iii. and tarsi and apex of protarsus iv. clothed with thick scopula. Femora, tibia, and protarsi iii. and iv. clothed beneath with golden-yellow hairs, i. and ii. with pubescence only.

Tarsal claws 2, with claw-tuft on each side; armed on

* In honour of my friend Mr. R. Reidy, whose intimate acquaintance with Brazilian manners and customs and complete mastery of the language smoothed the way for us on many occasions during our expedition.

inner side with 3 small denticules. Spinners 6, anterior pair and posterior pair two-jointed.

Vulva consisting of a broad dark chitinous plate, emarginate before, broadly truncate behind (towards spinners), with two curved yellow side-pieces.

Measurements in millim.—Tot. len. 40, carap. 15·75; legs i. 62·5, ii. 59, iii. 47·5, iv. 62·5; pat. + tib. i. 23, iv. 19, iii. 15.

A single female of this species, the largest of the group met with, was taken by myself in the forest near Santarem. It was started from the palm-leaf thatch of a hut in the forest, in which we had taken refuge from the rain, by my companion Mr. T. Wallace, Jun. Its attitude, crouched down flat upon the surface with legs extended, made it appear, at first sight, to be a gigantic specimen of the ubiquitous *H. venatoria*.

*Ctenus Andrewsii**, sp. n., ♀.

Hab. Santarem and Pará Forest.

Type in coll. Brit. Mus. Nat. Hist. London.

♀. Length 32 mm.

Colour the same as in *Reidyi*, except that the abdomen has a dorsal series of three conspicuous and three smaller and less conspicuous spots on each side of the central line.

Vulva longer in proportion to its breadth. Lateral curved side-pieces absent, their place taken by a black tubercle surmounted by a sharp black spur.

Measurements in millim.—Tot. len. 32, carap. 12·25; legs i. 56, ii. 51·5, iii. 42·5, iv. 56; pat. + tib. i. 20, iv. 16, iii. 12·25.

Two females were taken from the hollow stem of a decayed palm-tree in the forest close to Pará, near the Casa da Oleria. Both of them had a large dull white egg-sac attached to the inner surface of the hollow stem. This form is evidently very closely allied to *Reidyi*, but, seeing that the two specimens from Pará were evidently fully adult, the differences are not merely those due to immaturity, as one would have otherwise suspected. I shall be surprised if fresh material does not confirm the specific difference between the two forms, though it is never safe to prophecy without being in possession of the facts. A third example was taken in the forest near Santarem, wandering about some wooden palings close

* I have much pleasure in naming this form after my friend Mr. T. Andrews, who contributed not a little to the general success of our scientific investigations.

to the Sitio Andirobal. These huge spiders are evidently nocturnal in their habits, the last-mentioned specimen having been disturbed from its hiding-place.

Ctenus boliviensis, sp. n., ♂ ♀.

Hab. Bolivia.

Types in coll. Brit. Mus. Nat. Hist. London, 1896.

♂. Total length, including mandibles, 34 mm., ♀ 40 mm.

♂.—*Colour.* Carapace, legs, and sternum very dark reddish-brown mahogany, clothed with dull yellow-brown pubescence. Abdomen brown, clothed with yellow-brown pubescence. Legs clothed beneath with thick yellowish hair.

♀.—*Colour* similar to that of the male, but darker. Abdomen with broad central scalloped pale band and two or three oblique lateral bands of pale spots extending down the sides, while the integuments have been denuded of pubescence. Pedipalps without pale lines in front. Mandibles clothed at apex with dull orange hairs.

♂.—*Structure.* Carapace, profile almost straight. Eye-formula similar to that of *Reidyi* and *Andrewsi*. Lateral eyes on a distinct tubercle; second row straight by anterior margins. Ocular quadrangle slightly longer than broad, scarcely narrowed in front. Armature of legs similar in both sexes to that of *Reidyi*. Lower margin of fang-groove with 5 teeth, upper with 3. Tarsal claws 2, with 4 curved denticles. Claw-tuft present. Scopula thick on protarsi and tarsi i. and ii., slighter on protarsus iii., and absent on that of iv. Tibia of pedipalp furnished with a very thick scopula, and its apex on outer side armed with a very stout, curved, chisel-headed spur. For palpal organs see Pl. III. fig. iii. a, b, c.

♀.—*Structure* similar to that of the male. The vulva was so damaged that no satisfactory figure can be made of it. It is, however, similar in general character to those of *Keyserlingii* and *nigriventer*.

Measurements in millim.—Tot. len. 41, carap. 16.75; legs i. 65, ii. ?, iii. ?, iv. 64.

These, the largest species of the genus I have met with (except *Reidyi*), were taken by Herr Rolle at Madre de Dios (Bolivia), and were in the collection of the British Museum. They are allied to *Reidyi*, but have not the pale lines on the palps (♀), nor is the hair on the mandible of so bright an orange.

Ctenus Pertyi, nom. nov. (*C. rufibarbis* (Perty), Keys.).

This species, of which I have not seen the type, appears to

be closely allied to *Reidyi* and *Andrewsi*, but evidently quite distinct, if we may judge from Keyserling's figure of the vulva. Cf. notes on *C. rufibarbis* (Perty), Keys., above.

Measurements in millim.—Tot. len. 33·2, carap. 13·2; legs i. 46·6, ii. 41·9, iii. 33·5, iv. 46; pat. + tib. i. 18·5, iv. 16, iii. 12·5.

Ctenus Keyserlingii, nom. nov. (*C. ferus* (Perty), Keys.).

The type of this form differs decidedly from both *nigriventer*, Keys., and *boliviensis*, sp. n., in the form of the vulva (see Pl. III. fig. ii. c), though the general character is the same. Cf. notes on *C. ferus* (Perty), Keys., above.

Measurements in millim.—Tot. len. 30, carap. 17·2; legs i. 50·9, ii. 48·3, iii. 37·1, iv. 51·8; pat. + tib. i. 20·5, iv. 18·2, iii. 14·3.

Ctenus nigriventer, Keys.

Distinguished from *Keyserlingii* and *boliviensis* by the black ventral surface of the abdomen and a difference in the form of the vulva (Pl. III. fig. ii. d). To finally confirm or refute the apparent distinctions between these three forms one needs many more specimens. It is impossible to make definite assertions based on a single specimen of each form.

Measurements in millim.—Tot. len. 30, carap. 15; legs i. 44·9, ii. 42·2, iii. 34·3, iv. 46·8; pat. + tib. i. 17·9, iv. 16·4, iii. 12·8.

Ctenus medius, Keys., ♀.

The figure of the vulva given by Keyserling is quite sufficient to establish the distinction between this form and the others here recorded, even if the type had not been to hand by way of confirmation.

A female and a male (the latter described for the first time below, p. 87) were found in a collection from Theresiopolis, S. Brazil. The female is identical with the type of Keyserling's *medius*.

Measurements in millim.—♀. Tot. len. 22, carap. 12; legs i. 37·5, iv. 42; pat. + tib. i. 13, iv. 12, iii. 10.

Ctenus nigritus, sp. n., ♂.

Hab. Forest, Santarem.

Type in coll. Brit. Mus. Nat. Hist. London, 1896.

♂. Total length (including mandibles) 15 mm.

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Carapace mahogany-brown, with fine pale central line; clothed with fine yellow-grey pubescence.

Abdomen brown, clothed with black and grey hairs, mixed; with a pale central dorsal line extending from the anterior margin to the spinners; shoulders black, a series of four black spots on each side; ventral surface with a broad wedge-shaped central black band, with two white spots at base and a white margin extending from the stigmatic orifice to the spinners.

Legs mahogany-brown above; sternum and underside of coxæ and femora pale yellow-brown; clothed with fine silky yellow-grey hairs.

Carapace gibbous behind; dorsal profile slightly concave.

Eyes. Laterals on a very slight tubercle; anterior much smaller than posterior, one third their diameter. Centrals forming a quadrangle a little broader than long, posteriors larger. Outer margin of fang-groove armed with 5 teeth, inner with 3.

Legs. Spinous armature similar to others of the group. Tibiæ i. and ii. with five pairs of spines beneath. *Tarsi* alone of all four pairs bearing a *scopula* beneath. Tarsal claws 2, with four long broad denticles beneath. Claw-tuft present.

Palpus and *organs* (Pl. III. fig. vii. a).

A single adult male of this spider was taken by myself in the Forest of Santarem, February 1896.

Ctenus albofasciatus, sp. n., ♀.

Hab. Forest, Santarem.

Type in coll. Brit. Mus. Nat. Hist. London, 1896.

♀. Total length (including mandibles) 14 mm.

Colour.—*Carapace* dark mahogany-brown, with broad central band of golden-grey pubescence, and a small spot on clypeus above base of each mandible.

Abdomen clothed with black and golden-orange hairs, with a basal, central, dorsal, longitudinal, pale golden-yellow band, extending to the middle of the upperside; shoulders very black. Ventral surface dark brown, with four longitudinal rows of pale spots.

Structure.—*Carapace* gibbous and raised behind, dorsal profile slightly concave. Lateral posterior eyes on a distinct tubercle; lateral anteriors very small, their diameter less than half that of the former and distant from them twice their diameter. Centrals forming a quadrangle a little broader than long; posteriors slightly larger (Pl. III. fig. i. d).

Second row of eyes straight by anterior margins. Lower margin of mandibles with 5 teeth, upper with 3.

Legs. Spinous armature similar to others of the group. Tibiæ i. and ii. with five pairs of spines beneath. Anterior protarsi with three pairs of spines beneath. Protarsi and tarsi i. and ii. clothed beneath with very slight scopula, iii. and iv. tarsi only. Tarsal claws 2, armed beneath with four long broad denticules; claw-tuft present.

Vulva (Pl. III. fig. iv. b).

Measurements in millim.—Tot. len. 14, carap. 6.75; legs i. 20, iv. 25; pat.+tib. i. 7, iv. 7, iii. 5.

Two adult females of this richly coloured species were taken by myself in the Forest of Santarem in Feb. 1896.

Ctenus minor, sp. n., ♀.

Hab. Forest, Santarem.

Type in coll. Brit. Mus. Nat. Hist. London, 1896.

Total length (including mandibles) 11 mm.

Colour. Carapace pale brown, with central band of golden-yellow pubescence. Abdomen dark olive-brown, with numerous scattered groups of pale golden-yellow hairs; with a short basal central band and three or four transverse bars of pale pubescence; sides with three oblique lines of spots of golden-yellow hairs. Ventral surface paler, with numerous longitudinal indistinct lines of pale hairs. Legs pale brown, with numerous isolated short pale hairs and spots of hair.

Structure similar to that of *albofasciatus*. *Vulva* (Pl. III. fig. iv. c).

Measurements in millim.—Tot. len. 11, carap. 5; legs i. 15.5, iv. 19.5; pat.+tib. i. 5.5, iv. 5.5, iii. 4.25.

A single adult female of this small species was taken by myself in the Forest of Santarem, Feb. 1896.

Ctenus similis, sp. n., ♀.

Hab. Forest, Santarem.

Type in coll. Brit. Mus. Nat. Hist. London.

Total length (including mandibles) 12 mm.

This form is almost identical with *C. albofasciatus* except in being smaller, in not having the carapace raised behind, in having the second row of eyes procurved instead of straight, and in possessing a very different form of vulva (Pl. III. fig. iv. a).

Measurements in millim.—Tot. len. 12, carap. 7; legs i. 20.5, iv. 24; pat.+tib. i. 7, iv. 7, iii. 5.25.

A single specimen from the Forest, Santarem, Feb. 1896.

Ctenus planipes, sp. n., ♂.

Hab. Forest, Santarem.

Types in coll. Brit. Mus. Nat. Hist. London.

Total length (including mandibles) 11 mm.

Colour. Carapace very pale yellow-brown. Abdomen darker brown, with central basal pale band extending to the spinners, the last half consisting of indistinct transverse spots; sides paler, spotted with brown. Legs pale olive-brown, clothed with long silky yellow hairs.

Structure. Carapace very much raised and gibbous at base, inclined towards ocular area. Eyes similar to those of *albofasciatus*; second row straight by anterior margins, central anteriors much smaller and forming a narrower transverse row than central posteriors. Ocular quadrangle broader than long. Armature of legs similar to others of the group. Tibiæ i. and ii. with five pairs of spines beneath. Protarsi i. and ii. with three pairs. Lower margin of fang-groove with 5, upper with 3 denticules.

For structure of pedipalp and organs see Pl. III. fig. vi. b. Tibia with a short, curved, sharp black spur, directed forwards along the side of the tarsus, not projecting from the joint.

A single adult male of this species, which belongs to the group including *sinuatifpes*, sp. n., *curvipes*, Keys., and several other forms I have seen, not yet described, was taken in the Forest of Santarem in Feb. 1896.

Ctenus sinuatifpes, sp. n., ♂ ♀.

Hab. Costa Rica.

Types in coll. Brit. Mus. Nat. Hist. London.

Total length (including mandibles), ♂ 20, ♀ 22 mm.

♂.—*Colour.* Carapace mahogany-brown, with a broad diamond-shaped pale patch behind the eyes and a fine central line following it. Abdomen brown, clothed with fine golden-brown pubescence; with a pale, central, longitudinal, dorsal, scalloped band, consisting of five united blotches, clothed with golden-brown pubescence. Underside dull olive-brown. Sternum and legs dull olive-brown, the femora of the latter annulate; clothed with golden-brown pubescence.

♀.—*Colour* similar to that of the male, but much darker.

♂.—*Structure.* Carapace only slightly gibbous at base and slightly concave in profile. Legs similar to others of the genus; scopula slight on apical half of protarsi i. and ii., apex of iii., and none on iv.

Protarsus iv. bent suddenly in the middle in a sinuous form, the basal angle armed with 5 spines and a stout curved chisel-headed spur beneath the joint, its apex directed outwards. Eye-formula similar to others of the genus. Tarsal claws 2, with 4 sinuous denticules; claw-tuft present.

Pedipalp. Tibia with a stout black spur on the outer side at apex; palpal organs (Pl. III. fig. vi. e). The form of the tibial spur is very variable.

♀.—*Structure* similar to that of male. Carapace in profile less concave and gibbous at base. Cephalic area slightly gibbous. Protarsus iv. normal. Vulva (Pl. III. fig. iv. d). Fang-groove with 5 denticules on lower margin, 3 on upper.

Measurements in millim.—♀. Tot. len. 22, carap. 10; legs i. 38, iv. 41·5; pat. + tib. i. 13, iv. 13, iii. 10.

This species, remarkable amongst other allied forms in the male sex for the curious development of the posterior protarsus, which is developed in somewhat the same manner as the protarsus of the first pair of legs in some of the Theraphosidæ, was taken at La Palma (Costa Rica) by Mr. J. F. Tristram. There were in the collection two adult males, one adult female, and several immature of the latter sex.

Ctenus rectipes, sp. n., ♂.

Hab. Iguarassu, Brazil.

Type in coll. Brit. Mus. Nat. Hist. London.

Total length 17 mm., carapace 8·5; legs i. 35, iv. 39; carapace equals pat. + tib. iii. in length; pat. + tib. i. longer than pat. + tib. iv.

Colour. Carapace, legs, sternum, and mouth-parts mahogany-brown, clothed with yellow-grey pubescence. Abdomen unicolorous above, clothed with fine rufous-yellow hairs. Ventral area dark sooty brown, with a narrow, central, lanceolate pale band extending from the genital rima almost to the spinners.

Structure. Carapace raised, gibbous, and slightly bilobate behind. Other general characters similar to those of others of the group. Tib. i. and ii. with 5—5 spines beneath, 2 lateral and 2 dorsal. Protarsus iv. straight. Tibia of pedipalp longer than broad, with a short straight apophysis, obliquely truncate at apex, directed forwards from the apex of the joint on outer side, its outer surface striate and its length less than broadest diameter of the joint. Tarsal claws 2.

Eyes. Second row straight by anterior margins; ocular quadrangle as broad as, or slightly broader than, long, a little

narrower in front. Clypeus equal to $1\frac{1}{4}$ diameter of anterior centrals. Apex of inner marginal spine of palpal organs simple, blunt, and stout.

A single male was taken by Mr. Ramage near Iguarassu, Brazil. The species is closely allied to others of the "*curvipes*" group whose posterior *protarsi* are straight. (Pl. III. figs. vi. a and vii. b.)

Ctenus spiculus, sp. n., ♂.

Hab. Colombia.

Type in coll. Brit. Mus. Nat. Hist. London.

Tot. len. 15.5 mm.; carap. 9; pat.+tib. i. 16.75, iv. 16, iii. 9.75.

Colour. Carapace brown, cephalic area with two pale lines on each side, followed by a central line to posterior margin. Legs and abdomen brown (dried specimen).

Structure. General characters as in others of the group. Carapace gibbous at base above. Ocular quadrangle broader than long, narrower in front. Second row straight by anterior margins; clypeus equal to $1\frac{1}{2}$ diameter of anterior centrals. Carapace less than pat. and tib. iii.

Protarsus iv. slightly sinuous, basal concavity (very slight) directed outwards. Apical concavity directed inwards, more noticeable, not spinose except at apex, and from basal end of apical section towards the base of the segment armed with numerous spines. This form of protarsus iv. forms an intermediate link between *rectipes*, *nigritus*, and *longipes*, and *planipes*, *serratipes*, &c.

Tibial spur longer, more slender, twice as long as its basal breadth, apex carinate, recurved; directed straight forwards. Marginal spine of palpal organs stout at apex and simple. Central lobe short, dorsally excavate, not emarginate or bifid in front.

A single specimen of this distinct form taken in Colombia is in the Museum collection. (Pl. III. fig. vii. h.)

Ctenus minimus, sp. n., ♂.

Hab. N. America.

Type in coll. Brit. Mus. Nat. Hist. London.

Tot. len. 7.5 mm., carap. 3.75; legs i. 17, iv. 16.

Structure. Carapace raised and gibbous behind. Tibiæ i. and ii. with five pairs of spines beneath and two lateral spines on each side. General structure otherwise similar to others of the group. Protarsus iv. straight. Pedipalp long, at least two thirds that of carapace, 6 mm. Patella three times longer than broad, tibia four times; tibia incrassate towards apex (as

also the patella), with a short bluntly rounded spur on outer side above at apex, with a second shorter curved spur below and a short, more slender spur lying between, directed towards the base of tarsus. Base of tarsal sheath with small sharp triangular spur on outer side above.

Eyes. Second row straight by anterior margins; ocular quadrangle broader than long, narrower in front, central anteriors a little smaller than posteriors.

Clypeus narrow, equal to one half diameter of anterior centrals.

Colour. Carapace, legs, sternum, and mouth-parts rufous-brown. Abdomen with pale scalloped longitudinal dorsal band. Lateral area streaked with black.

N.B.—These specimens, having been some time in spirit, possibly have not preserved their colouring.

It is not improbable that this species may be the male of *punctulatus*, Hentz, though there are no black longitudinal lines on the carapace, as he points out is the case in his species. I am not aware that these two American species have ever been adequately figured. The specimen described above is one of two males from N. America. (Pl. III. fig. v. 1, 2.)

Ctenus serratipes, sp. n., ♂ ♀.

Hab. Demerara.

Type in coll. Brit. Mus. Nat. Hist. London.

♂. Tot. len. 18 mm., carap. 8·5; pat.+tib. i. 13, iv. 13·5; legs i. 37·3, iv. 39.

♂.—*Colour.* Carapace, legs, and abdomen ferruginous brown (dried specimen).

♀.—*Colour* the same (dried specimen).

♂.—*Structure.* Ocular quadrangle longer than broad; second row of eyes procurved. Details of the structure of the tibial spurs and of protarsus iv. will be found in the table of species.

Central lobe of palpal organs deeply bilobate.

A single male and female in the Museum collection from Demerara. The vulva of the female was not sufficiently preserved to furnish a reliable figure or description. (Pl. III. figs. vi. c and vii. d.)

Ctenus medius, Keys. (♂ new to science).

Hab. Theresiopolis, S. Brazil.

Type in coll. Brit. Mus. Nat. Hist. London.

♂. Tot. len. 22 mm., carap. 11·5; pat.+tib. iii. 13; i. 17, iv. 15·75.

♂.—*Colour*. Carapace, abdomen, and legs unicolorous brown.

Structure. General characters similar to those of others of the group. Ocular quadrangle longer than broad; second row of eyes procurved.

Protarsus iv. very strongly curved, so that the convexity of the basal section lies inwards, while the apical section is straight and the tarsus is set on obliquely or almost at right angles to the protarsus, its apex directed inwards. A detailed description of this portion of the structure and of the tibial spur is given in the table of specific characters.

Palpal organs. Marginal spine trifid at apex; central lobe small, broad, rounded at apex, simple.

For notes on *C. medius*, Keys., ♀, see p. 81.

A single specimen of the male and another of the female of this extraordinary spider were found in a collection from Theresiopolis, S. Brazil. The female is identical with *C. medius*, Keys., of which the type is now before me, easily recognizable by the pair of oval boss-like prominences lying obliquely and convergent at the anterior margin of the vulva. These types are from Rio Janeiro. It is interesting to find that the male of this very ordinary looking female should be so extraordinary in appearance, owing to its excentrically developed posterior legs.

PART II.—(a) *Genera of the Old and New Worlds which have been assigned by various authors to the Families Ctenidæ and Lycosidæ, containing Forms possessing three tarsal claws, with Notes on the Type Species.*

1872. *Senoculus*, Tacz. Hor. Soc. Ent. Ross. ix. p. 108, t. iii. fig. 4. Type *S. maronicus*, Tacz.—St. Laurent de Maroni.

1876. *Nilus*, Cambr. Spid. Palest. Egypt, p. 596, pl. lix. fig. 13. Type *N. curtus*, Cambr.—Alexandria.

1878. *Pycnoctenus*, L. Koch, Arach. Austr. ii. p. 996, pl. lxxxvii. fig. 2. Type *P. robustus*, L. K.—Sydney.

1873. *Labdacus*, Cambr. Proc. Zool. Soc. p. 118. Type *L. monastoides*, Cambr., ♀.—Rio Grande, Brazil.

1878. *Cycloctenus*, L. Koch, Arach. Austr. ii. p. 988, t. lxxxvi. 3. Type *C. flaviceps*, L. K., ♀.—New Holland.

1880. *Stenoctenus*, Keys. Verh. z.-b. Ges. Wien, xxix. p. 340. Type *S. gracilis*, Keys., ♀.—Peru.

1880. *Platyctenus*, Keys. Verh. z.-b. Ges. Wien, xxix. p. 338, note.

1880. *Ancyclometes*, Bertk. Mém. Cour. Acad. Belg. xliii. p. 114. Type *A. vulpes*, Bertk., ♀.—Barbacena.

1884. *Titurius*, Sim. Ann. Mus. Gen. xx. p. 328. Type *T. fimbriatus* (Walck.), ♀.—Cape of Good Hope.
1885. *Thalassius*, Sim. Bull. Soc. Zool. Fr. p. 13. For *Titurius*, nom. præocc.
- *1888. *Vulsor*, Sim. Ann. Soc. Ent. Fr. viii. p. 233. Type *V. bidens*, Sim., ♀.—Island Mayotte, Madagascar.
- *1888. *Viridasius*, Sim. Ann. Soc. Ent. Fr. viii. p. 233. Type *V. pulchripes*, Sim., ♂ ♀.—Island Nossi-Bé, Madagascar.
1891. *Dolopæus*, Thor. Kongl. Sv. Vet.-Akad. Handl. xxiv. (2) p. 60. Type *D. cinctus*, Thor., ♀.—Island Kamorta, Nicobar, Bay of Bengal.

The type of *Pycnoctenus*, L. K., will be the single species described at the time of founding the genus, *P. robustus*, L. K. For the same reason *Nilus curtus*, Cambr., remains as the type of *Nilus*, Cambr. *L. monastoides*, Cb., was the single species originally assigned to *Labdacus*, Cambr., while *Cycloctenus flaviceps*, L. K., is, for the same reason, the type of *Cycloctenus*, L. Koch. *Stenoctenus gracilis*, Keys., is also on this account the type of *Stenoctenus*, Keys. *A. vulpes*, Bertk., for the same reason, is the type of *Ancyclometes*, Bertk.

M. Simon has selected *T. fimbriatus* (Walck.), sub *Ctenus*, as the type of (*Titurius*) *Thalassius*, Sim. *V. bidens*, Sim., and *V. pulchripes*, Sim., remain with an undisputed right to be regarded as the types of *Vulsor*, Sim., and *Viridasius*, Sim., respectively. *Dolopæus cinctus*, Thor., is alone also as the type of *Dolopæus*, Thor. *P. maronicus* (Tacz.), sub *Senoculus*, is the type of *Platyctenus*, Keys., a name substituted, on the ground of inappropriateness, for *Senoculus*, Tacz.

Note.—Genus DOLOMEDES, Latr., 1804.

1833. *Dolomedes concolor*, Perty. ♀. Del. Anim. Bras. iii. p. 197, pl. xxxix. fig. 4. Sebastianopolis, Brazil.—The form of the eyes is "Ctenoid," though it is quite likely, for all the evidence to the contrary, that it belongs near my *Lycotenus*. No mention is made of the number of tarsal claws. See sub *Ctenus unicolor*, Walck., above, p. 61.

Genus SENOCULUS, Tacz., 1872.

1872. *Senoculus*, Tacz.—A name given to a spider with a Ctenoid eye-formula, supposed by Karsch to be six-eyed, whereas in reality the lateral anterior eyes are present, though very small and inconspicuous (*S. maronicus*, Tacz.). Keyserling, in consideration of the resemblance of his

* I cannot gather from Simon's description to which group these two genera belong.

Stenoctenus gracilis to *Senoculus*, and convinced that it was an eight-eyed form, gave it the name *Platyctenus*, on the grounds that *Senoculus* was inappropriate. The latter name having been obviously *given under a misapprehension*, it seems reasonable to modify in such cases the strict letter of the laws of nomenclature. But if one begins to discard names on the ground of inappropriateness, where is the process to stop? I therefore would regard *Platyctenus* as a synonym of *Senoculus*.

1872. *Senoculus maronicus*, Tacz. ♀, 6 mm. Hor. Soc. Ent. Ross. ix. p. 108, t. iii. fig. 4. Type of genus, only species described. St. Laurent de Maroni.

1879. *Senoculus rubromaculatus*, Keys. ♀, 8.5 mm. Verh. z.-b. Ges. Wien, p. 339, pl. iv. fig. 30. Peru.

Genus LABDACUS, Cambr., 1873.

1873. *Labdacus monastoides*, Cambr. ♀, 9.5 mm. Proc. Zool. Soc. Lond. p. 118. Type in coll. O. P. C. Rio Grande, Brazil.

1880. *L. plumosus*, Sim. ♀, carap. 3.6 mm. Bull. Soc. Zool. Fr. p. 154. Pará, Brazil.

1880. *L. purpureus*, Sim. ♀, 8.5 mm. Bull. Soc. Zool. Fr. p. 155. Panama.

1880. *L. parallelus*, Sim. ♀, 8.6 mm. Bull. Soc. Zool. Fr. p. 156. Teflé, Upper Amazons, Brazil.

1880. *L. ruficapillus*, Sim. ♂ ♀, 9.5 mm. Bull. Soc. Zool. Fr. p. 154. Pará, Brazil.

1880. *L. iricolor*, Sim. ♂ ♀, 12.5 mm. Bull. Soc. Zool. Fr. p. 153. Teflé, Upper Amazons, Brazil.

Table of Species (after Simon).

A. Carapace and abdomen clothed with plumose hairs.

1. Carapace with striæ strongly marked *L. plumosus*, Sim.

2. Carapace with striæ scarcely noticeable *L. iricolor*, Sim.

B. Carapace and abdomen clothed with simple hairs.

i. Legs short. Tibiæ i. and ii. with 4—4 (or 5—5) long spines beneath.

a. Posterior eyes very large. Centrals a little less than their diameter apart, scarcely $1\frac{1}{3}$ diameter from laterals *L. ruficapillus*, Sim.

b. Posterior eyes moderate in size. Centrals

further apart, at least over one diameter apart, at least two diameters from laterals.

1. Tibiæ i. and ii. with 5—5 spines beneath.
Protarsi i. and ii. with 5—5 (or 5—6) spines beneath. Central posterior eyes two diameters from laterals. Size smaller, carapace 3 mm. *L. purpureus*, Sim.
- 1a. The number of spines beneath tibiæ i. and ii. not mentioned in the description, but are 5 in the figures *L. monastoides*, Ch.
2. Tibiæ i. and ii. with 4—4 spines beneath. Protarsi i. and ii. with 3—3 spines beneath. Central posteriors 3 diameters from laterals. Size larger, carapace 5.5 mm. *L. albidus*, sp. n.

Labdacus albidus, sp. n., ♀.

Hab. Rio de Janeiro.

Type in coll. Brit. Mus. Nat. Hist. London.

Carapace 5.5 mm., abd. 10.

Colour. Carapace, legs, and abdomen dull yellow-red, clothed with short pure white pubescence. Legs furnished with short fine black spines, their margins fringed with long curving silky white hairs.

Structure. Carapace with striæ distinct; anterior ocular area (from anterior margin of posterior centrals to clypeus) horizontal. Central anterior eyes $1\frac{3}{4}$ diameter apart, very small. Clypeus narrow, $1\frac{1}{2}$ diameter of anterior centrals. Ocular quadrangle longer than broad, narrower in front. Central posteriors $1\frac{1}{2}$ diameter apart, 3 diameters from laterals. Lateral anteriors very small, close in front of posterior laterals.

Legs. Tibiæ i. and ii. with 4—4 spines beneath and 2 lateral spines; protarsi i. and ii. with 3—3 spines beneath and 2 or 3 laterals.

Tarsal claws 3.

The description of this fine species, the largest of the genus hitherto discovered, is drawn from a dried specimen in the Museum collection. It is closely allied to *purpureus*, Sim., but differs in the number of subtibial spines and the position of the eyes. I give a table of species according to the characters furnished by M. Simon, including *albidus* and *monastoides*, for the benefit of those who may not have Simon's paper at hand.

Genus NILUS, Cambr., 1876.

1876. *Nilus*, Cambr.—The eye-formula and three tarsal claws would seem to suggest *Thalassius*, Sim.

Genus PYCNOCTENUS, L. K., 1878.

1878. *Pycnoctenus*, L. K.—I have not yet seen a form from the New World which I could assign to this genus.

Genus CYCLOCTENUS, L. K., 1878.

1878. *Cycloctenus*, L. K.—No form which I have met with yet from the New World would seem to belong to this genus.

Genus STENOCTENUS, Keys., 1880.

1880. *Stenoctenus gracilis*, Keys. ♀, 8 mm. Verhand. z.-b. Ges. Wien, p. 341, t. iv. fig. 29. Type in coll. Warsaw Museum. Aimable Maria, Peru.—I have not seen the type of this species, also the type of the genus; but of this and *Senoculus* Keyserling says (p. 337):—"Diese und die folgende Gattung gehören in der mit drei Klauen am Ende der Tarsen," &c.

Another species which was found in Keyserling's collection under the name *S. pallidus*, from Brazil, I describe below, since I can find no description of it.

Keyserling placed *Stenoctenus* and *Senoculus* under the Ctenoidæ.

Stenoctenus pallidus is closely related to, if not identical with, "*Labdacus*," Cambr., a three-clawed form with Ctenoid eye-formula.

In 1880 (Bull. Soc. Zool. Fr. v. p. 152) M. Simon says of *Labdacus*:—"Il tient en effet de près aux *Ctenus*, aux *Oxyopes*, aux *Podophthalma*, aux *Triclaria*, C. K."—"pour nous il se rattache cependant à la famille des Ctenidæ." This must have been before M. Simon decided upon regarding the tarsal claws as of more importance than resemblances in the eye-formula.

The type of *Labdacus*, Cb., and *Stenoctenus pallidus* certainly have no connexion with the true Cteninæ with two claws, save a certain resemblance in the eye-position.

Stenoctenus pallidus, sp. n.

Type in coll. Brit. Mus. Nat. Hist. London.

Rio de Janeiro, São Antonio.

♂.—*Colour*. Carapace dull orange, suffused on the margins with dusky black. Mandibles dull orange. Sternum, maxillæ, and legs pale straw-yellow. Abdomen pale yellow, its lateral margins reticulated with black streaks. Dorsal

area with several smaller black spots and with a larger single black arrow-head mark just behind the centre. Eyes set on six large black spots.

Structure. Carapace longer than broad, segmental grooves well marked. Ocular area of carapace almost *flat*, not rounded nor vertical in front, but only slightly depressed towards clypeus, whose width is less than half a diameter of anterior centrals. Eyes very small, set on black tubercles. Posterior row recurved, occupying the total width of caput; eyes subequal, centrals 2 diameters apart, 4 from lateral posteriors. Lateral anteriors very minute, set just in front of the lateral tubercle, but not *on* it. Anterior centrals smaller than posterior centrals, $\frac{3}{4}$ of a diameter apart, 3 from central posteriors. Ocular quadrangle longer than broad, narrower in front.

Legs very long, 1, 4, 2, 3 (i. is twice as long as total length of body, iii. about $1\frac{1}{2}$ total length), very spinose, many, however, being rubbed off the femora. Tibiæ i. and ii. with 9–10 spines on either side underneath, and 2 or 3 dorsal. Protarsi i. and ii. with 8–9 spines on either side beneath. Tibia and protarsi iii. and iv. with several pairs of long spines beneath. Tarsi without *scopula*, furnished beneath with short stiff bristles.

Tarsal claws 3, the upper with 9–10 long denticules, the under without any.

Sternum longer than broad; coxæ iv. contiguous.

Labium three times longer than broad, $\frac{2}{3}$ the length of maxillæ, parallel-sided, apex truncate, set with converging bristles. Maxillæ four times longer than broad, straight, parallel, parallel-sided, rounded at apex.

Mandibles straight, slightly concave on inner side in front, with several converging bristles. Lower margin of fang-groove with three teeth, upper with two. Spinners situated at the extreme apex of abdomen. Tarsus of pedipalp furnished with numerous stout spines (Pl. IV. fig. v. a, b).

A single adult male in coll. Keyserling, named *pallidus*, from Rio Janeiro.

1880. *Platyctenus*, Keys. Verh. z.-b. Wien, xxix. p 338, note.—A name suggested by Keyserling instead of *Senoculus*. The spiders included in this genus and *Stenoctenus* probably do not belong to the Clubionidæ, subfam. Uteninæ, at all.

1880. *Ancylometes*, Bertk.—In the absence of the type or any description made from a comparative point of view I hesitate to suggest the affinities of the genus.

Genus *THALASSIUS*, Sim., 1885.

1884. *Titurius*, Sim., = 1885. *Thalassius*, Sim.—Forms from the Cape are before me which would seem without doubt to belong to this genus. It is very distinct from *Lycotenus*. Of the type of the genus, *T. fimbriatus* (Walck.), M. Simon kindly tells me (Sept. 5, 1896):—"Je pense que le type de *Titurius* (*Ctenus*) *fimbriatus*, Walck., n'existe plus."

VULSOR, Sim., 1888.

1888. *Vulsor bidens*, Sim. ♀, 21 mm. Ann. Soc. Ent. Fr. viii. p. 233. Mayotte, Madagascar.—This species and the next have an eye-formula very similar to that of *Thalassius* (*Titurius*), Sim.—at least, so one would gather from the description,—the lateral anteriors being equidistant between the central anteriors and the central posteriors. Tibiæ i. and ii. with 3—3 spines beneath and 2 lateral spines. Ocular quadrangle as broad as long, anterior row narrower than the space occupied by central posteriors. Clypeus one half broader than diameter of central anterior eyes. Lower margin of fang-groove with 2 teeth. Simon places this and the next genus amongst the Cteninæ, but whether as a two-clawed form or not one cannot say, for it is not obvious from the description.

VIRIDASIVS, Sim., 1888.

1888. *Viridasius pulchripes*, Sim. 21 mm. Ann. Soc. Ent. Fr. viii. p. 233. Nossi-Bé.—The remarks made under *Vulsor* above apply also to this form. It is generically distinct (sec. Simon) from *Vulsor* by the higher clypeus, twice as high as the diameter of anterior central eyes, and by the 4—4 spines beneath tibiæ i. and ii., instead of 3—3 as in *Vulsor*.

Genus *THAUMASIA*, Perty, 1833.

1833. *Thaumasia senilis*, Perty. ♂. Del. Anim. Art. iii. p. 192, t. xxxviii. 5. Brazil, Piahiensi.—It is very doubtful whether this species belongs to the Cteninæ or not. The eyes would suggest that it does, but the general character that it does not. It seems highly probable that it belongs to one of the Lycosid groups.

Genus DOLOPÆUS, Thor.

1891. *Dolopæus*, Thor.—I cannot as yet speak with any certainty of the affinities of this genus, except that it has three tarsal claws and a "Ctenoid" eye-formula.

(b) *Characters of a new Genus and Descriptions of new Species from the New World.*

Genus LYCOCTENUS, nov. *

Type *L. brunneus*, sp. n.

Lower Amazons.

Diagnosis.—Eye-formula "Ctenoid," second row procurved. Lateral anteriors midway between central and lateral posteriors. Ocular quadrangle a little longer than broad, scarcely narrower in front than behind; all four eyes subequal. Clypeus equal to $2\frac{1}{2}$ diameters of anterior centrals.

Lower margin of fang-groove with 4 stout teeth, no. 3 sometimes small (*♂ Hewitsoni* has 3 only), upper with 1 large and 2 small.

Tibiæ i. and ii. with 4 pairs of short spines beneath. No lateral or dorsal spines in the female (male with 3 lateral and 3 dorsal).

Protarsi i. and ii. with 3 pairs of spines beneath and a single short stout spur at apex beneath. Protarsi iii. and iv. with two apical spines beneath.

Posterior tarsi iii. and iv. with a double series of 3–6 short spines beneath on each side.

* I hesitate to determine the systematic position of this genus until much more material has come before me. It is undoubtedly very nearly allied to *Thalassius* (*Titurius*), Simon; but the latter (sec. Simon) has three teeth on the lower margin of the fang-groove, one of the characters by which *Thalassius* is distinguished (sec. Simon) from *Dolomedes*. Specimens very probably belonging to *Thalassius*, Simon, which have come before me from South Africa, are certainly not congeneric with my *Lycotenus*. *Vulsor* and *Viridasius* possess 2 teeth only on the fang-margin. Of *Dolopæus* Thorell says (1895, Spid. Burmah) "non a *Thalassius* differt"; so that it certainly differs from *Lycotenus*. Neither is *Lycotenus* congeneric with *Pycnotenus* and *Cycloctenus*, L. K., since the posterior eyes of the ocular quadrangle are much larger than the anteriors in the latter genera, while in *Lycotenus* both posterior and anterior eyes are subequal. I would not like to be too sure about its distinctness from *Ancylometes*, Bertk., for I do not quite grasp the characters of the latter. M. Simon says with reference to this genus, comparing it with *Dolomedes*:—"la marge inférieure des chélicères offre constamment quatre dents (*Dolomedes*), tandis que chez les *Thalassius*, de même que chez les *Ancylometes*, elle n'en présente que trois." Bertkau says of his own genus, "unterer Klauenfalzrand mit 4, oberer mit 2 Zähnen," so that I hesitate to speak at all positively concerning the latter genus.

A thick undivided scopula beneath tarsi and protarsi i. and ii. Scopula beneath apex of protarsus iii., none beneath iv. Scopula beneath tarsi iii. and iv. divided longitudinally by a broad band of setæ.

Legs 4, 1, 2, 3.

Tarsal claws 3. Claw-tuft absent.

Labium scarcely longer than broad, narrowed at base, rounded at apex.

Maxillæ straight, rounded externally, obliquely truncate on inner apex, much narrowed at base.

Mamillæ set in a transverse quadrangle, broader than long, posterior pair wider apart than anterior at base, more slender and slightly longer; both pairs cylindrical, with small apical joint. Central pair shorter, and broadly truncate at apex.

Carapace abruptly but obliquely precipitous behind.

Patella and tibia i. equal to or less than patella and tibia iv.

Table of Species.

Males.

- A. Carapace dark fulvous brown, with broad lateral margin white.
1. Abdomen unicolorous brown above. Carapace not shorter than tib. i. (or iv.).
 - a. Size larger, 22 mm. Pat. and tib. i. longer than pat. and tib. iv. Palpal "unca" plain in front *L. demerarensis*, sp. n.
 - b. Size smaller, 18 mm. Pat. and tib. i. equal to pat. and tib. iv. Palpal "unca" with sharp prominent angle in centre of frontal margin *L. colombianus*, sp. n.
 2. Abdomen with two small white spots above the black shoulder-spot; a pair of small central dorsal white spots and a pair of white spots towards the apex. Carapace much shorter than tib. i. (or iv.).
 - a. Size much larger, 30 mm. Pat. and tib. i. longer than pat. and tib. iv. Palpal "unca" stout at apex and abruptly hooked; dorsal angle much more prominent *L. gigas*, sp. n.
 - b. Size much smaller, 20 mm. Pat. and tib. i. shorter than pat. and tib. iv. Palpal "unca" more slender at apex and not abruptly hooked; dorsal angle less prominent *L. brunneus*, sp. n.
- B. Carapace pale straw-yellow (or dull orange), with a broad lateral brown band on each side of a broad central pale band *L. Hewitsoni*, sp. n.

Females.

- A. Carapace dark fulvous brown, with broad lateral margin white.
1. Size larger, 35 mm. Central tongue of vulva with median groove, rounded anteriorly, obtusely pointed behind; in profile not abruptly inclined posteriorly *L. brunneus*, sp. n.
 2. Size smaller, 27 mm. Central tongue of vulva with median carina, squarely truncate anteriorly, sharply pointed behind; in profile abruptly inclined posteriorly *L. bogotensis*, Keys.
- B. Carapace pale straw-yellow (or dull orange), with a broad lateral brown band on each side of a broad central pale band. ♀ juv. *L. Hewitsoni*, sp. n.

Lycoctenus brunneus, sp. n., ♂ ♀.

Hab. Forest, Santarem.

Type in coll. Brit. Mus. Nat. Hist. London.

♀. Length (including mandibles) 32 mm., ♂ 20 mm.

Colour. Carapace, mandibles, pedipalps, legs, and sternum dull red-brown, clothed with short brown pubescence. Abdomen brown, clothed with short brown pubescence, with a double dorsal series of two distinct small pale spots, and two much larger ones just above the spinners. Anterior shoulders of abdomen black. Sides marked with a few pale spots. Underside with a broad, central, pale wedge-shaped band, indistinct; no stigmata near vulva. Legs mottled very indistinctly with dark brown.

♂. Similar, except carapace with broad grey band on each side.

Carapace. Central stria distinct. Cephalic area not raised at all; profile line of thoracic and cephalic regions horizontal; abruptly and precipitously inclined at the base.

Eyes. Laterals not on a distinct tubercle; posteriors prominent, diameter twice that of anteriors, the latter distant more than one diameter from the former. Four centrals in a quadrangle a little longer than broad. Posteriors slightly larger.

Legs. Femora i., ii., iii., and iv. spinose above. Tibiæ i. and ii. with four pairs. Protarsi i. and ii. with three pairs of spines beneath, and a single apical central spine beneath; iii. and iv. with two apical spines beneath. Tibiæ and protarsi iii. and iv. with numerous spines above and below.

Tarsal claws 3, superiors armed with 5 or 6 long broad denticules. No claw-tuft.

A thick scopula beneath protarsi and tarsi i. and ii., beneath tarsus and apical half of protarsus iii., and beneath tarsus

alone of iv. Tarsi iii. and iv. with a double series of 6 small spines beneath, on either side of central longitudinal band of setæ.

Vulva consisting of a broad, central, wedge-shaped chitinous piece, convex in front, with three longitudinal indentations or grooves, the central one the longest, having on each side a broad, semicircular, convex band of chitin. Palpal organs of male with a central hook-like apophysis (the "unca"), the hook itself long and slightly curved. Tibia furnished with two dark apophyses at apex, one beneath the other on outer side (see figures). Fang-groove of mandibles with four teeth on lower side, three towards base on upperside.

Measurements in millim.—♂. Tot. len. 20, carap. 10; legs i. 53, iv. 56; pat.+tib. i. 15.5, iv. 16.75; tib. i. 11, iv. 12.

♀. Tot. len. 35, carap. 14; legs i. 50, iv. 56; pat.+tib. i. 17, iv. 17; tib. i. 10.5, iv. 11.

Five females and one male of this fine species were taken by myself in the forest near Santarem. They seem to lead a vagabond life, appearing sometimes in the daytime, sometimes at night, but are probably chiefly nocturnal in their habits. The male was taken after dark, with the aid of a lantern, crossing a path in the forest, and one of the females ascending a bank, having been disturbed by the scrimmage made in an effort to secure a fine scorpion. (Pl. IV. figs. i. a, c 2, d, and ii. a, c.)

Lycoctenus bogotensis (Keys.), ♀. Verh. z.-b. Ges. Wien, 1877, p. 684.

Tot. len. 27 mm., carap. 12.7; legs i. 38.5, iv. 46; pat.+tib. i. 15, iv. 15.4; tib. i. 9.2, iv. 10 (sec. Keyserling).

This species, of which the types are before me, is readily distinguishable by the form of the vulva from *brunneus*, though at first sight they appear identical. The central tongue of the vulva has a high carina in the centre, abruptly lowered posteriorly, seen in profile. This central tongue in *brunneus* has a central channel between two low carinæ, which sink gradually behind. In *bogotensis* the central tongue is squarely truncate and broader anteriorly, converging to a sharp point posteriorly; in *brunneus* it is narrower and rounded anteriorly, bluffly rounded behind, though attenuate (Pl. IV. fig. ii. b, d).

Lycoctenus gigas, sp. n., ♂.

Hab. Uncertain, probably Upper Amazons.

Type in coll. Brit. Mus. Nat. Hist. London.

Tot. len. 30 mm., carap. 13·5; legs i. 75, iv. 76; pat. + tib. i. 23·5, iv. 22.

This huge form, the full expanse of whose legs extends over $5\frac{1}{2}$ inches (149 mm.), while that of *brunneus* is only 4 inches (118 mm.), is identical with the latter in general characters, but presents decided differences on close comparison with it, irrespective of absolute size. Pat. and tib. i. are in *gigas* longer than the same segments in iv., while in *brunneus* the first two are shorter than those of iv.

The palpal "unca," though longer and somewhat more slender, is much stouter and more abruptly hooked at its extremity, while the dorsal angle is more prominent and different in form (Pl. IV. fig. i. c, 1).

A single specimen in the Museum collection from Brazil, probably from the Upper Amazons.

Lycoctenus demerarensis, sp. n., ♂

Hab. Demerara.

Type in coll. Brit. Mus. Nat. Hist. London.

Tot. len. 22 mm., carap. 11; legs i. 54, iv. 57; pat. + tib. i. 17, iv. 16; tib. i. 10·75, iv. 11·25.

Abdomen unicolorous above, dull russet below. A form closely allied to *colombianus*, which may ultimately prove to be identical with it. Pat. and tib. iv. are unequal in the present form, equal in *colombianus*, while the palpal "unca" presents differences sufficient, in consideration of the difference of locality, to warrant the formation of a distinct subspecies for both forms, until further material enables one to decide more positively on the point.

It can readily be distinguished from *gigas* and *brunneus* by the absence of spots on the abdomen and from the fact that the carapace equals tibia iv. in length. The "unca" of the palpal organs is, moreover, more slender and does not present so decided and prominent a dorsal angle as in these two latter forms (Pl. IV. fig. i. c, 3).

A single male from Demerara, taken by Mr. W. L. Sclater.

Lycoctenus colombianus, sp. n., ♂.

Hab. Colombia, S. America.

Type in coll. Brit. Mus. Nat. Hist. London.

Tot. len. 18 mm., carap. 9·5; legs i. 39, iv. 46; pat. + tib. i. 13·5, iv. 13·5; tib. i. 9, iv. 9·5.

Abdomen unicolorous above, ferruginous below. This form resembles *demerarensis* in general characters, but differs

from it in the form of the palpal "unca," its smaller size, and in the relative lengths of pat. and tib. i. and iv. From *gigas* and *brunneus* it may be known by the concolorous abdomen (Pl. IV. fig. i. 4).

A single dried specimen of the male in the Museum collection from Colombia, South America.

Lycoctenus Hewitsoni, sp. n.*, ♂ ♀.

Hab. Largo, near Santarem.

Types in coll. Brit. Mus. Nat. Hist. London.

♀ (immature). Length (including mandibles) 25 mm., ♂ 20 mm.

Colour.—♀. The whole spider entirely dull yellow-brown, carapace and abdomen towards apex darker; the former exhibits an indistinct broad central and marginal pale bands. Legs variegated with numerous spots and lines of white pubescence.

♂. Similar to the female; carapace paler, with two dark bands between the three pale bands much more distinctly marked. Abdomen with shoulders darker and two dark central, dorsal, parallel lines on the basal half, continued as a single line to the spinners. Legs pale yellow; tibia, protarsi, and tarsi sooty, clothed with white and grey pubescence, especially conspicuous on the protarsi.

Ocular area and clypeus spotted with white pubescence. Mandibles with a conspicuous basal spot of white on upper-side.

Carapace with fine central stria, gibbous posteriorly, and abruptly inclined to the pedicle. Dorsal profile slightly concave. Eyes as in "*brunneus*," laterals not on tubercle. Fang-groove with 3 denticles on both margins. Armature of legs similar to that of "*brunneus*." Tarsal claws 3; superiors with 6 long broad denticles beneath, graduated towards base. No claw-tuft.

♀ juv. Similar to the male, but margins of fang-groove with four denticles on each.

Measurements in millim.—Tot. len. 18, carap. 9.5; tib. i. 9.5, iv. 9.5; pat. + tib. i. 12.5, iv. 12.5; legs i. 38, iv. 43.

Very abundant on grass and rushes in the Largo at the mouth of the Tapajos, opposite Santarem. The females were unfortunately all immature, though I had the luck to secure one adult male. The spiders rested on the grass with legs

* In memory of a delightful expedition in company with Mr. Hewitson to the haunts of the "*Victoria regia*," when numerous arachnological treasures were added to our collection.

stretched out before and behind along the stem, being very difficult to see owing to the exact similarity of their colour to the pale yellow withered grass-blades. When alarmed they would run with ease and great rapidity on the surface of the water, diving below or running down the grass-stems beneath the surface if hard pressed. The Dolomedine habits and general structure of this species and another much larger form, of which I was unable to get adult specimens, and therefore hesitate to describe, are very noteworthy. (Pl. IV. fig. i. b.)

PART III.—*Cribellate "Ctenoid" Forms referred by Simon to Fam. Zoropsidæ, with two tarsal claws; Notes and Descriptions of new Species from the New World.*

Family Zoropsidæ, Simon*.

Subfam. ACANTHOCTENINÆ, Sim.

Genus ACANTHOCTENUS, Keys., 1877.

Diagnosis.—Eye-formula "Ctenoid." Ocular quadrangle scarcely longer than broad; anterior side narrower; anterior centrals smaller than posterior centrals; second row procurved. Clypeus as high as twice the diameter of anterior centrals†. Tibiæ i. and ii. with 7–9 pairs of very long spines beneath and 3–4 spines on each side. Protarsi i. and ii. with five pairs of long spines beneath; no central apical spine beneath. Patella and tibia i. much longer than iv. Legs (1, 4)—2, 3. Tarsal claws 2. Calamistrum and cribellum present. Lower margin of fang-groove with 3 teeth, upper with 2.

This genus was formed for the reception of two Cteniform species, *A. spinipes*, Keys., from Bogota, and *A. spinigerus*, Keys., from Cordova, Mexico, in 1877.

M. Simon has pointed out (Hist. Nat. Ar. i. p. 229) that these spiders having the calamistrum and cribellum belong more properly to his family Zoropsidæ, under the subfamily Acanthocteninae. He also says that the species referred to this genus by Thorell (Ann. Mus. Gen. 1890) &c.—*A. variatus*, *dimidiatus*, and *lætus*—belong to the Cteninae.

The type of this genus has been selected by M. Simon,

* This classification is adopted provisionally.

† M. Simon says (Hist. Nat. Ar. i. p. 229):—"Clypeus oculis anticis non multo latior." If the comparison is with the diameter of the eyes it is incorrect, but if with the transverse space occupied by the eyes it is a pity it is not clearly so stated. Fig. 178, p. 227, is, however, correct in this respect.

namely *A. spiniger*, Keys.; this, however, is not the name given by Keyserling, which is *spinigerus*.

I have been able to add a fine species to the genus in addition to the two, *spinigerus* and *spinipes*, described by Keyserling, of which the types are now before me, and another has come to hand from the collection of Mr. Ridley, in the possession of the Natural History Museum, South Kensington, taken near Pernambuco, to which I have given the name *Ridleyi*.

Table of Species.

Males.

- a. Size much larger, 17 mm. Tibia of pedipalp much produced beneath, on outer side at apex; forming a dilatation whose apex is furnished with a short, sharp, black hook. Apex of bulb bearing a fine, curving, spiraloid spine, springing from a membranous tissue *A. Marshii*, sp. n.
- b. Size much smaller, 12.5 mm. Tibia of pedipalp not so much produced; outer side slightly dilate at apex and terminating in a short, broad, chitinous spur. Apex of bulb bearing no spiraloid spine *A. spinigerus*, Keys.

Females.

- a. Size much larger, 20 mm. Vulva presenting a transverse oval depression, with central posterior triangular tongue, whose anterior margins are continued on either side in the form of a coiled spiraloid oviduct *A. Marshii*, sp. n.
- b. Size much smaller, 14.3 mm.
 1. Vulva presenting anteriorly a large quadrate spade-like depression, concave within towards apex, which is bilobate. Produced posteriorly into a stem, dilate towards posterior margin, flanked on both sides by a horseshoe-shaped tuberculiform prominence, procurved, whose arms (transversely corrugate) terminate with a small shining boss. Cribellum divided in centre into two distinct triangular areas *A. spinipes*, Keys.
 2. Vulva presenting anteriorly on each side a spiraloid curving process. Central tongue dilate in centre on each side, with narrow black chitinous margin, posteriorly narrowed. Cribellum transverse oblong, not divided in centre into two distinct areas *A. Ridleyi*, sp. n.

1877. *Acanthoctenus spinigerus*, Keys. ♂, 12.5 mm. Verh. z.-b. Ges. Wien, p. 693, t. ii. (viii.) fig. 60. Mexico, Cordova. Type in coll. Brit. Mus. Nat. Hist. London. (Pl. IV. fig. iii. b.)

1877. *Acanthoctenus spinipes*, Keys. ♀, 14·3 mm. Verh. z.-b. Ges. Wien, p. 695, t. ii. (viii.) fig. 61. Type in coll. Brit. Mus. Nat. Hist. London. New Granada, Bogotá.

These two species belong to the subfam. Acanthocteninae of Simon, in the family Zoropsidae, where I leave them for the present in company with a new species—*A. Marshii*—described below, from the Amazons. They are separated by M. Simon from the other Ctenoid forms, on account of the presence of the calamistrum and cribellum. (Pl. IV. fig. iii. d.)

Acanthoctenus Ridleyi, sp. n., ♀.

Hab. Pernambuco, Brazil.

Type in coll. Brit. Mus. Nat. Hist. London.

Total length (including mandibles) 14 mm.

Colour. Carapace and legs mahogany-brown, the former with two lateral dark serrate bands on each side of the median line, the latter with indistinct annulations on the tibiae; protarsi and tarsi darker.

Structure. Similar in general character to the other forms of the genus, resembling, however, *A. spinipes*, Keys., rather than *Marshii*. Legs of first pair less than twice the total length (in *A. Marshii* they are more than twice the total length). Tibia i. with 7 pairs of spines beneath, ii. with 6–7 pairs beneath. Second row of eyes straight by anterior margins; ocular quadrangle broader than long, much narrower in front. Central posteriors large, less than half a diameter apart. Central anteriors much smaller, half a diameter apart. Clypeus equal to $1\frac{1}{2}$ diameter of anterior central eye.

Cribellum transverse, narrow, not divided into two triangular disks.

Vulva somewhat similar in general character to that of *Marshii*, but much less complicated. Central tongue dilate in middle on either side, with narrow black chitinous margins, anteriorly presenting on each side a spiraloid curving process, beneath which lies the oviduct.

This species was found among some spiders collected by Mr. Ridley in the neighbourhood of Pernambuco. (Pl. IV. fig. iii. e.)

*Acanthoctenus Marshii**, sp. n., ♀.

Hab. Santarem and Obidos.

Types in coll. Brit. Mus. Nat. Hist. London.

* It gives me much pleasure to connect this fine new species with the name of Mr. Marsh, by whose efforts our Amazonian collections, especially amongst the Lepidoptera, were considerably enriched

♂. Total length (including mandibles) 17 mm., ♀ 20 mm.

♂.—*Colour*. Carapace orange-yellow, with two broad brown bands with scalloped margins on either side of the central furrow. *Abdomen* dull orange-brown, mottled with brown and grey pubescence; with a broad central pale band, divided longitudinally in its first half by a brown line, transversely in its second by three Λ -shaped fine lines, terminating in a black spot at each end. The apical half bears dorsally two rows of three small tufts of fine grey hairs, with another row of the same on each side.

Legs pale orange, spinose, annulated with brown, and clothed between the annulations with hoary grey pubescence. Sternum and underside of abdomen dull yellow-brown.

Structure. Carapace with fine central line; profile-line concave, very and abruptly steep behind, and gibbous. Ocular region raised, lateral impressions deep.

Eyes. Centrals forming a quadrangle a little longer than broad, posteriors larger; laterals on a distinct tubercle; anteriors small, their diameter less than half that of posterior laterals, and more than their diameter distant from them. The lateral anteriors form with the central posteriors a procurving transverse line seen from in front. Clypeus narrower than diameter of anterior centrals.

Mandibles clothed with grey hairs. Fang-groove armed with 3 teeth on lower margin, 2 on upper at angle. Labium longer than broad, emarginate at apex, narrowed at base, half as long as coxæ of pedipalp. The latter parallel-sided, their inner margins smooth and slightly excavate, rounded at apex and tufted on inner apical angle with long curved hairs.

Legs 1, 4, 2, 3, long, and somewhat similar in action to those of the Laterigrades, armed with spines and clothed with fine silky yellow hairs, especially the tibiæ, protarsi, and tarsi of legs i. and ii. Femora i., ii., iii., and iv. spinose above, with two or three spines in front of first pair. Tibia i. with 8 pairs of long spines beneath (the number varies from 7 to 9 in the females), and a row of 3 or 4 on each side. Protarsus i. with 5 pairs of very long spines beneath, closely pressed against the scopula. Tibia ii. with 7-8 pairs of spines beneath and 3 or 4 spines on each side. Tibiæ and protarsi iii. and iv. with numerous spines. Tarsi of all four pair without spines.

Tarsal claws 2.

Pedipalp (Pl. IV. fig. iii. a, c). Femur with 5 or 6 stout spines on the upper inner side at apex. Patella with 2 spines on upperside. Tibia strongly emarginate on the outer side, curved, with two long spines and a tuft of long hair on the

inner side. Tarsus elongate-pyriform. Bulb simple, produced backwards at base, its apex terminating in two membranous prominences not well defined.

Measurements in millim.—♂. Carap. 7·5 long., 6·25 lat.; abd. 8·5 long., 4·5 lat.; stern. 3·25 long., 3 lat.; pedes long., i. 43, ii. 37, iii. 30, iv. 42; art. i. 2·75—·5—10—3·5—12—10·25—4. Comparative measurements of female the same, except pedes i. 43, iv. 43.

♀. The structure of the body is the same as that of the male, except that the gibbosity of the carapace at base is less pronounced.

Vulva broader than long, consisting of a pair of shallow circular spiraloid depressions, having between them posteriorly a small triangular piece.

Spinners 6, with a cribellum before the anterior pair; posterior pair slightly longer, with distinct terminal joint in the male, but not so noticeable in the female.

This large species was abundant in the neighbourhood of Santarem and in the Forest, as well as at Obidos. Its habit much resembles that of *Leiocranum rupicola* of Europe. It lurks beneath stones, pieces of timber, or tiles, sitting quite flat and close to the surface, darting round to the opposite side with extraordinary speed, and after the fashion of a "heteropod." Several females, almost adult, were taken, one adult male, and one adult female, whilst of the immature numerous specimens occurred. The webbing with which I found this spider connected was loose and flocculent, spread over the surface of the stone; but so rapidly did the spiders retreat, that I was unable to make any observations on their habits. They occurred abundantly amongst the stacks of the roofing-tiles piled up near the saw-mills in the neighbourhood of Santarem.

EXPLANATION OF THE PLATES.

PLATE III.

- i. *Ctenus*. Eyes in front of:—(a) *Ctenus Reidyi*, ♀; (b) *C. sinuatipes*, ♀; (c) *C. similis*, ♀; (d) *C. albofasciatus*, ♀.
- ii. *Ctenus*. Vulva. (a) *C. Reidyi*, (b) *C. Andrewsii*, (c) *C. Keyserlingii*, (d) *C. nigriventer*.
- iii. *Ctenus boliviensis*. (a) Palpal bulb from beneath; (b) central lobe; (c) tibial spur of pedipalp.
- iv. *Ctenus*. Vulva. (a) *C. similis*, ♀; (b) *C. albofasciatus*, ♀; (c) *C. minor*, ♀; (d) *C. sinuatipes*, ♀.
- v. *Ctenus*. *C. minimus*, ♂. Tibia of pedipalp, (1) from above, (2) from outside.
- vi. *Ctenus*. Protarsus and tarsus iv. of ♂. (a) *C. nigrinus* and *C. rectipes*, (b) *C. planipes*, (c) *C. serratipes*, (d) *C. curvipes*, (e) *C. sinuatipes*, (f) *C. medius*.

- vii. *Ctenus*. Tibial apophysis of pedipalp. (a) *C. nigrinus*, from outside; (b) *C. rectipes*, from outside; (c) *C. planipes*, from outside; (d) *C. serratipes*, from above; (e) *C. curvipes*, from below; (f) *C. sinuatis*, from above, with apophysis enlarged; (g) *C. medius*, from outside; (h) *C. spiculus*, from outside.

PLATE IV.

- i. *Lycotenus*. Palpal bulb from below. (a) *L. brunneus*, ♂; (b) *L. Hewitsoni*, ♂; (c) "unca" of bulb, (1) *L. gigas*, (2) *L. brunneus*, (3) *L. demerarensis*, (4) *L. colombianus*; (d) tarsal claws of *L. brunneus*, ♀.
- ii. *Lycotenus*. Vulva. (a) *L. brunneus*, ♀, from above; (b) *L. bogotensis*, from above; (c) *L. brunneus*, in profile; (d) *L. bogotensis*, in profile.
- iii. *Acanthotenus*. (a) *A. Marshii*, ♂: tibia and tarsus of pedipalp from outside; aa, tibial spur; bb, apical spine. (b) *A. spinigerus*, ♂: aa, tibial spur. (c) *A. Marshii*, ♀: vulva. (d) *A. spinipes*, ♀: vulva. (e) *A. Ridleyi*, ♀: vulva.
- iv. Cribellum and plan of spinners: (a) *A. Marshii*, ♀; (b) *A. Ridleyi*, ♀.
- v. *Stenotenus pallidus*, ♂. Tibia and tarsus of pedipalp, (a) from outside, (b) from beneath.
- vi. *Calotenus aculeatus*, ♀ (type). Eyes from in front.

Note.—The figures of *C. curvipes*, Keys., are from Keyserling's figures.

VIII.—Descriptions of new Malay Frogs.

By G. A. BOULENGER, F.R.S.

Ixalus vittiger.

Snout truncate, not projecting, as long as the diameter of the orbit; canthus rostralis distinct; loreal region concave; nostril nearer the tip of the snout than the eye; interorbital space broader than the upper eyelid; tympanum distinct, half the diameter of the eye. Fingers with a rudiment of web; toes two-thirds webbed; disks smaller than the tympanum; a small inner metatarsal tubercle. The tibio-tarsal articulation reaches the tip of the snout. Skin smooth above; throat smooth; belly granulate. Pale grey above, spotted all over with black; a white, black-edged streak on each side from eye to groin, another on the arm, and a third on the thigh; forearm and tibia spotted with black; lower parts white.

From snout to vent 22 millim.

A single specimen from Pengalengan, Java, 4000 feet, collected by Hr. H. Fruhstorfer.